FIRE ENGINEERING

OHIO STATE UNIVERSITY
JULY 19

The Journal of the Fire Protection Profession Since 1877

A Reuben H. Donnelley Publication

Above: New York Fireman Thomas De Chalus is showered with flaming debris during five-alarm fire in three Harlem tenements on May 9. Left: De Chalus dives down aerial ladder to escape the blazing avalanche

JULY • 1959

if your men aren't wearing Bullard helmets... head protection is costing you too much!

MORE FIRES FOR YOUR MONEY!

Expose rugged Bullard HARDBOILED fire helmets to searing flame (high as 2,000° F.), freeze them, soak them in boiling water... these grueling punishments won't soften or weaken a Bullard fire helmet's protective characteristics! This is the only fire hat that exceeds Federal specifications. No Fire Helmet is tougher, yet few are as comfortable to wear. Light and cool on your head... made from non-conductive fiber glass they weigh only 20 ounces. In a choice of permanent non-fading colors, these helmets are equipped with replaceable suspensions that adjust to all standard head sizes. Today, ask to see how Bullard Fire Helmets make your budget go further... help you fight more fires for the money!

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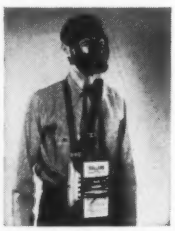

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Equip your units with gas masks at a 12% saving. Bullard "SMOKE-EATER" gas masks contain exclusive money saving filter for toxic dusts, fumes, mists, fogs, and smoke.

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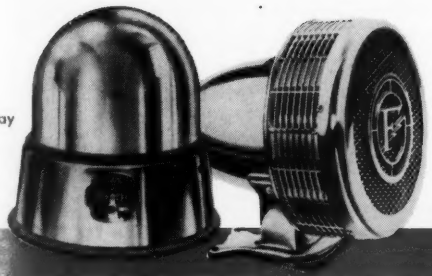
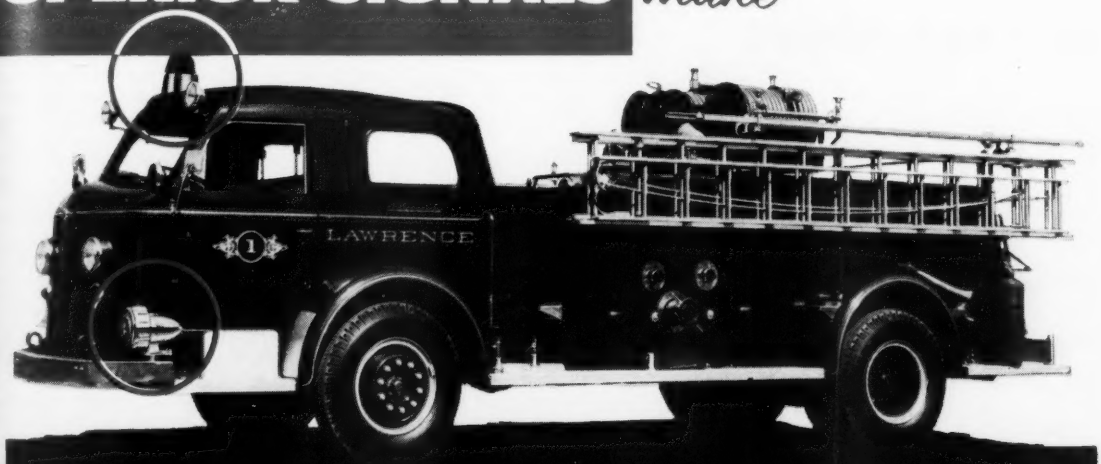


Famous Beacon Ray Light

Powerful Class "Q" Siren

SUPERIOR SIGNALS *make*



SUPERIOR FIRE DEPARTMENTS

This American La France pumper, in service at Lawrence Kansas, is an Empire model, 1000 gpm Class "A", with a 275 HP, V-12 engine, 300 gallon booster tank, 2 electric rewind overhead reels, built-in foam and wet water proportioneer, 4 pre-connected 1½" lines, Leese-Neville 100 amp. alternator with transformers and has a 5-man canopy cab. This superior piece of equipment is protected by a FEDERAL powerful Q-2b siren, famous Beacon Ray light and FS-3 flashing cowl light.

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T.M.

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FIRE ENGINEERING

VOL. 112 JULY, 1959 NO. 7

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Letters to the Editor

A recent day's mail brought two letters, differing greatly in wording, but with a common denominator of interest in FIRE ENGINEERING. One was a note of thanks from a schoolboy for information on fire prevention and fire fighting which the editors had supplied. As a result of this information, the youth attained a high place in his class.

The other letter, from the librarian of the Fire Service College, Surrey, England, requested permission to reprint three articles from a single issue of FIRE ENGINEERING, for research and study.

While widely divergent in mode of expression, these two letters attest to the fact that FIRE ENGINEERING is widely recognized as "The Journal of the Fire Protection Profession." Hundreds of letters each year from fire fighters throughout the United States and abroad, seeking information concerned with the fire service, further substantiate this stature.

The publishers and the editors will continue to make every effort to maintain FIRE ENGINEERING as the outstanding technical publication of the fire service. This will be particularly evident in the August issue which will contain abundant information on the latest trends in the field.

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FIRE ENGINEERING is published the fifteenth of each month by the Case-Shepperd-Mann Dept. Business Papers Division, The Reuben H. Donnelley Corporation, 305 East 45th Street, New York 17, N. Y.

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Subscription Rates: U. S. and Canada, $3.50 a year; Pan-American and Foreign, $4.50; Single copy, 40¢. Change of address should reach us one month in advance. Printed in U.S.A. Second class postage paid at Lancaster, Pa.

MAIL CHANGES OF ADDRESS and subscription orders to Fire Engineering, 305 East 45th Street, New York 17, N. Y. Please include your city delivery zone number.

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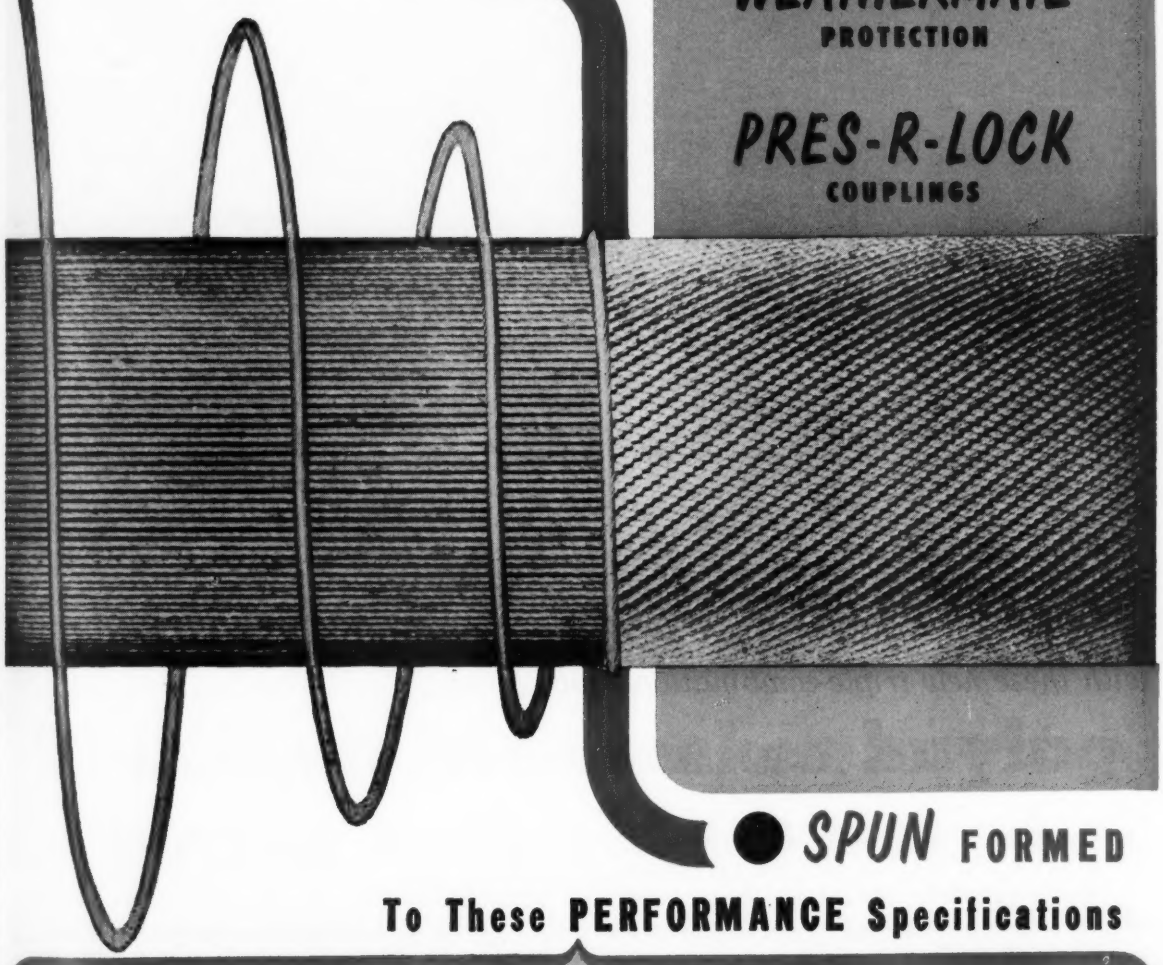

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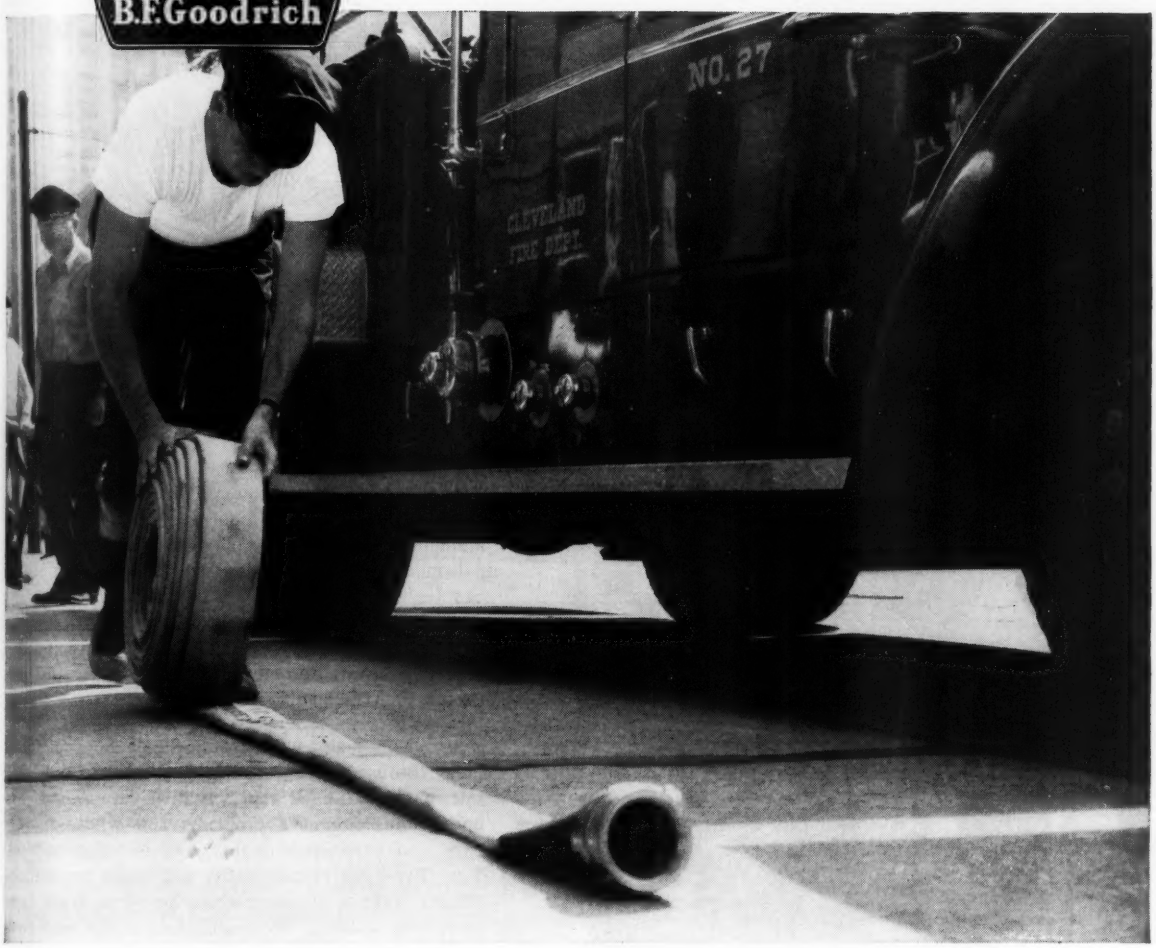

This light hose makes buying by the bulk old-fashioned

B.F.Goodrich hose is easier handling, saves time at fires

It used to be that a bulky hose was stronger than a light one. But with this B.F.Goodrich hose, "lightweight" no longer means a hose that can't take pressure or abuse. And what a difference it makes to the men handling hose. Here are some of the comments on this hose made by captains of the Cleveland (Ohio) Fire Department:

"It's easy handling—the same whether it's wet or dry. And it takes less space. We could get only 300 feet of the old 2½" hose in the same space that now takes 500 feet of the B.F.Goodrich hose," says Captain Leo Pavlick.

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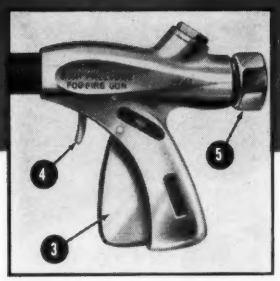

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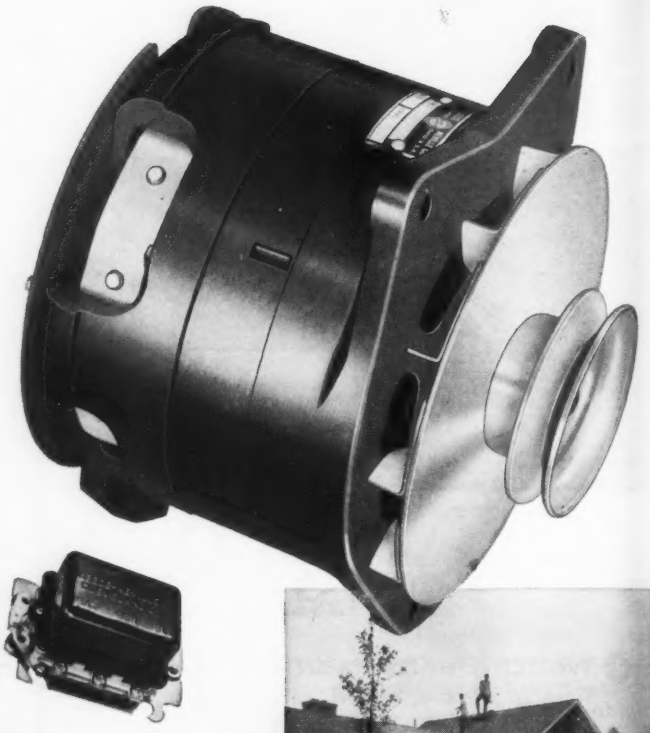
Also Available: Low-cost conversion kits for converting previous 3-piece systems to new 2-piece systems with built-in Silicon rectifiers.



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No. A001-2002AA with built-in Silicon rectifier—60 Amp rating, 19 lbs.

OUTSTANDING IMPROVEMENTS IN PERFORMANCE!

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ANY vehicle with accessories that require heavy electrical output, such as two-way radios, sirens, warning lights . . . any vehicle that performs a heavy task at speeds too slow to permit a "heavy-duty" generator to keep the battery charged . . . or any vehicle making frequent stops with motor idling . . . *definitely needs* a Leece-Neville alternator-generator system! Here's why!

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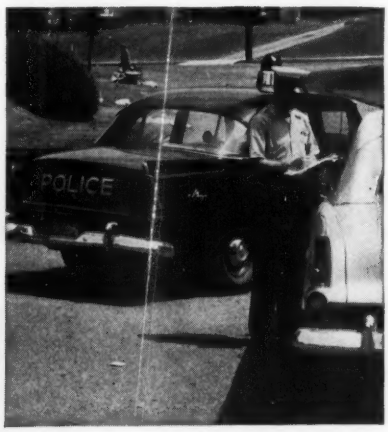

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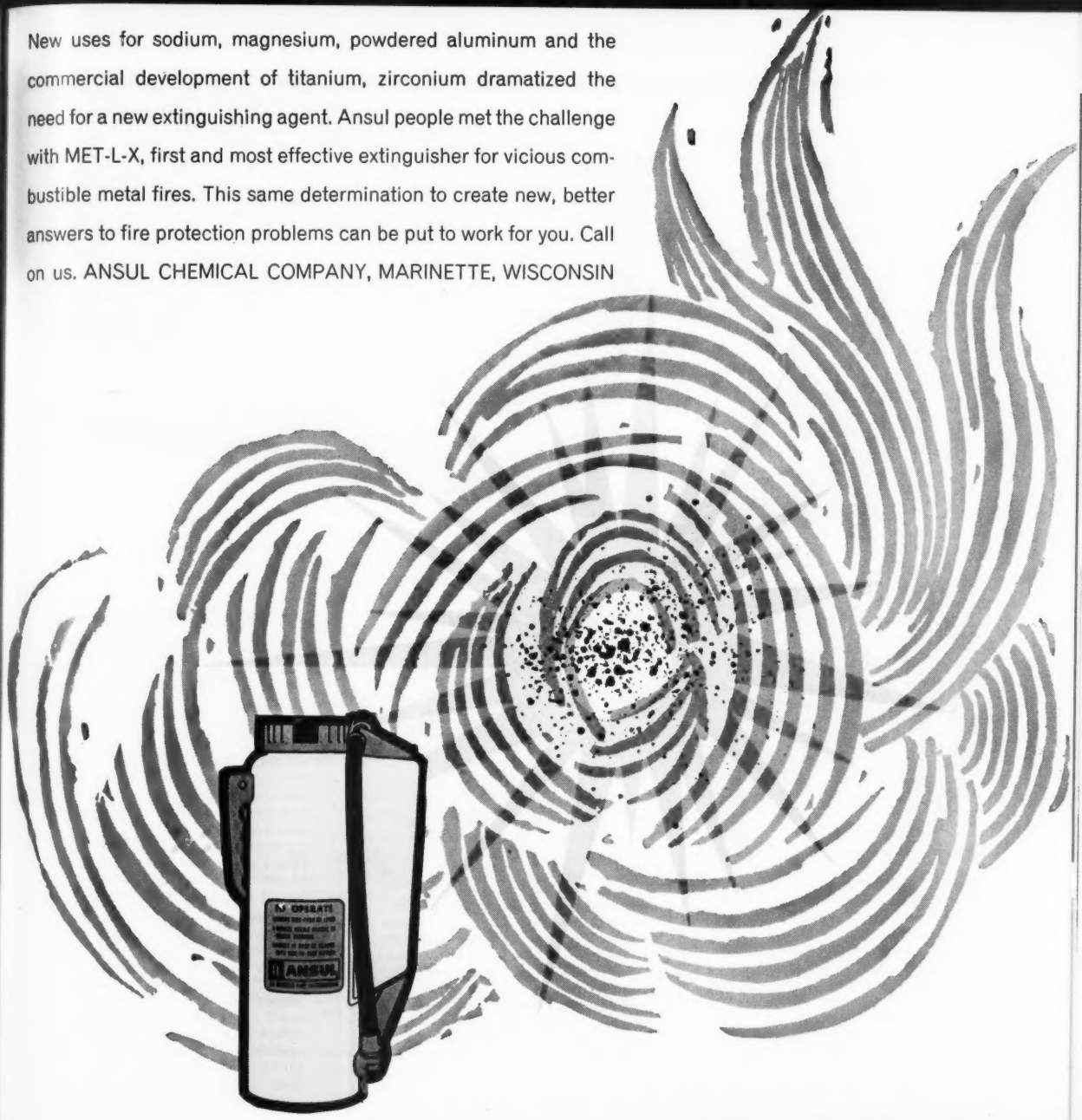

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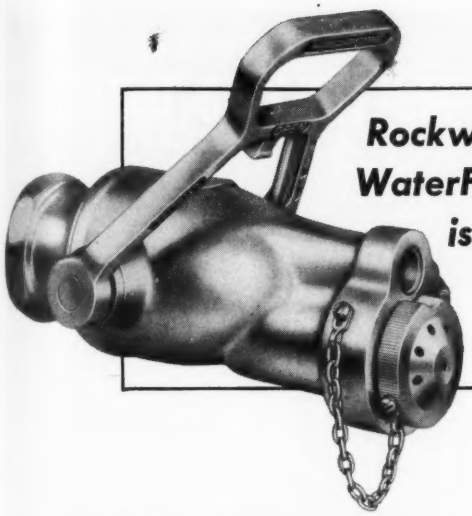

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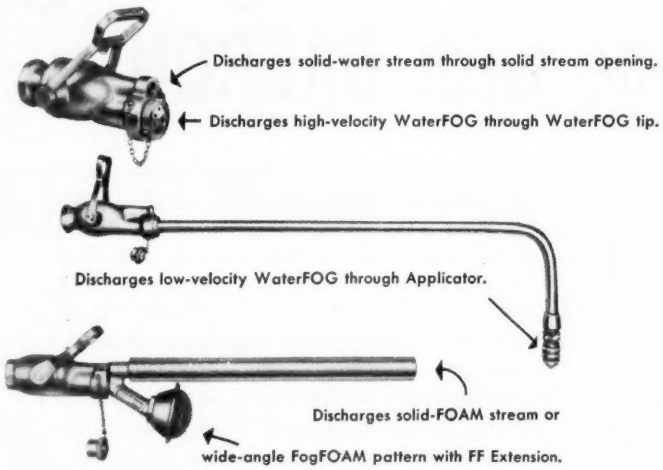
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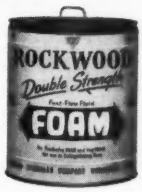
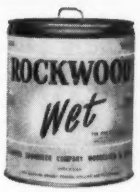


Rockwood WET

Mixes 1 part WET with 99 parts water. Increases water's penetrating and extinguishing action for quicker results against deep-seated fires. Saves time, water, and manpower.



Bayonet Piercing Applicator

Has hardened steel cutting tool attached to tip. Permits operator to pierce partitions, into interiors, etc. Discharges low-velocity WaterFOG.

ROCKWOOD SPRINKLER COMPANY
Pohtable Fire Protection Division
441 Harlow Street
Worcester 5, Massachusetts

Please send me your illustrated booklet on Rockwood fire-fighting products.

Name . . . . . .

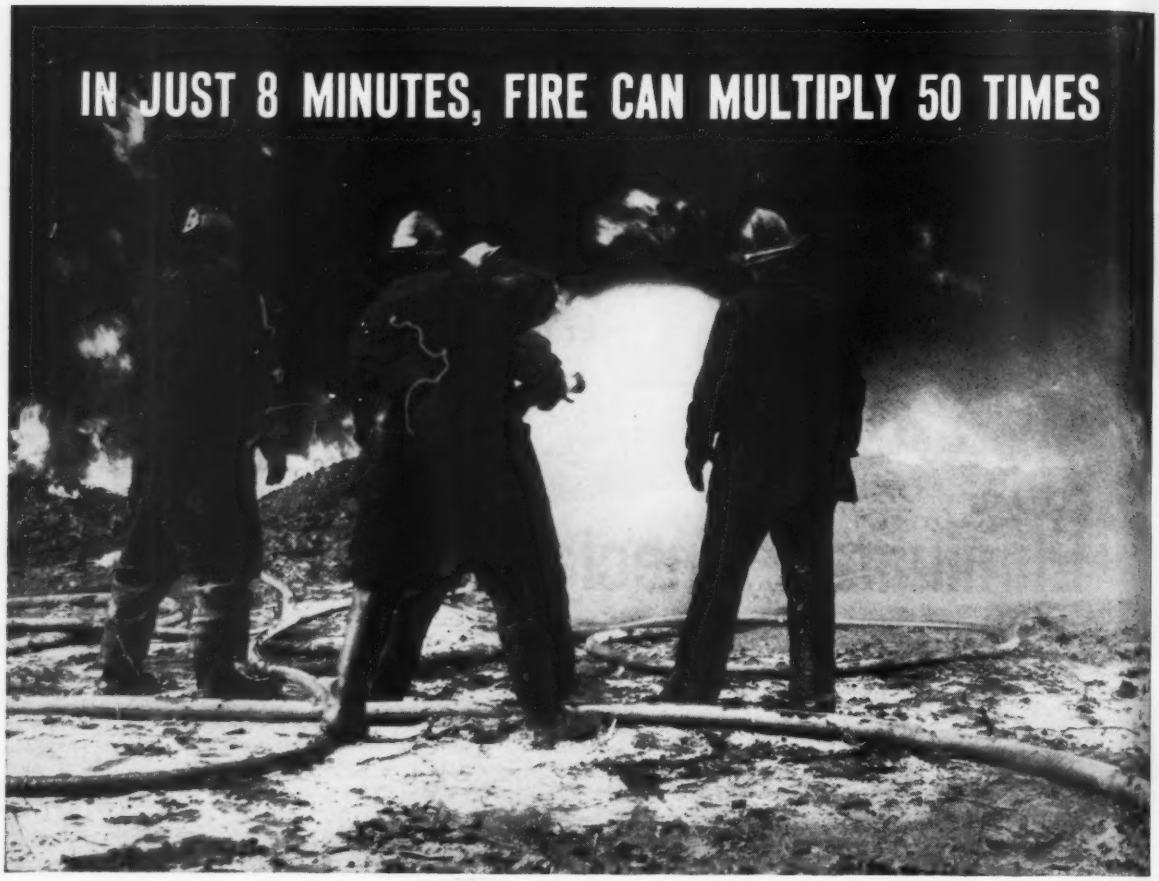
Title . . . . . .

Company . . . . . .

Street . . . . . .

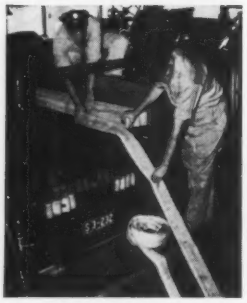
City . . . . . .

Zone . . . . . *State* . . . . . .



Save vital seconds with lightweight hose made with DACRON®

POLYESTER FIBER



MORE COMPACT—up to 500 extra feet of hose made with Du Pont DACRON fits into standard truck beds.

EASIER TO HANDLE—hose made with DACRON saves seconds when seconds count, loads quickly after fire.

Seconds often spell the difference between controlling a fire and disaster. That's why hose containing filler cords of Du Pont DACRON* polyester fiber is essential to modern fire-fighting efficiency. Hose containing DACRON has unusual strength, yet is lighter than ordinary hose. It has great flexibility and is easier to handle—gets into action fast. Make sure the hose you buy is made with Du Pont DACRON. Hose made with DACRON is produced by all hose manufacturers. E. I. du Pont de Nemours & Co. (Inc.), Textile Fibers Department, Wilmington 98, Delaware.

Enjoy the "Du Pont Show of the Month" on CBS-TV

DU PONT
REG. U. S. PAT. OFF.

*"Dacron" is Du Pont's registered trademark for its polyester fiber.

BETTER THINGS FOR BETTER LIVING ... *THROUGH CHEMISTRY*

FIRE HOSE MADE WITH "DACRON" is easier to handle ... gives improved performance ... packs more compactly.

SPECIFY

Powhatan "SUPER-FORGE"

DROP FORGED BRASS COUPLINGS

LIGHTWEIGHT

Non-Corrosive

DURABLE

Three Lug "Sensible Lugs"

on Male and Female with Higbee Indicators

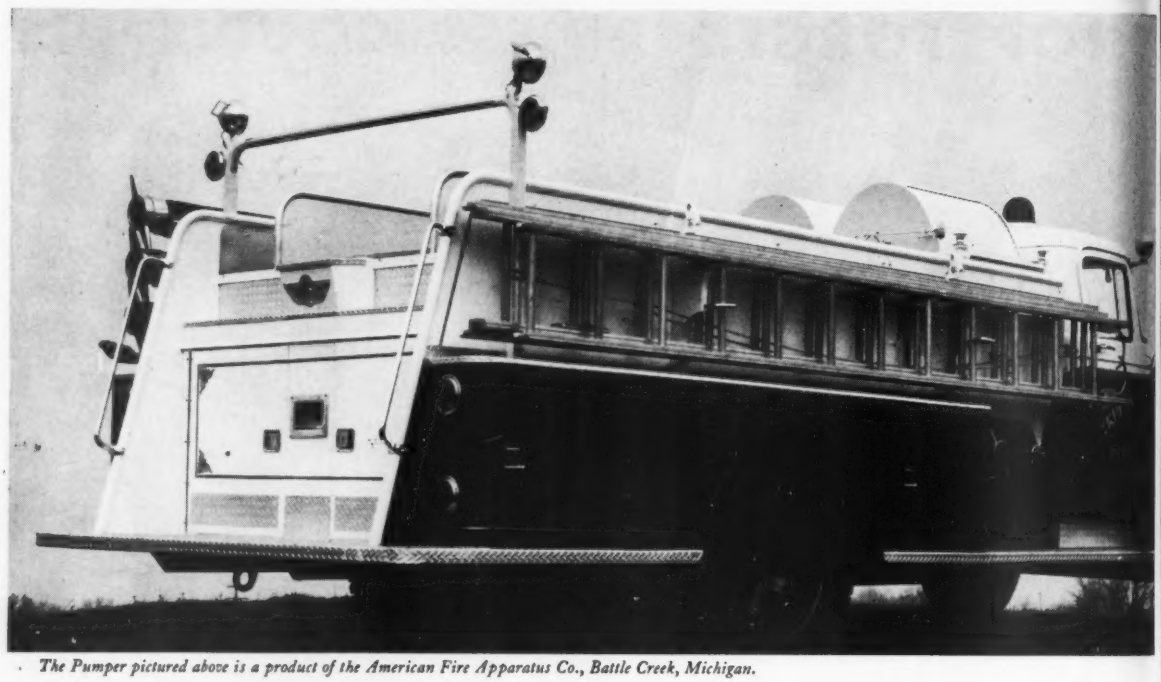
Available in 1½ and 2½ inch sizes

POWHATAN BRASS & IRON WORKS

RANSON, WEST VIRGINIA

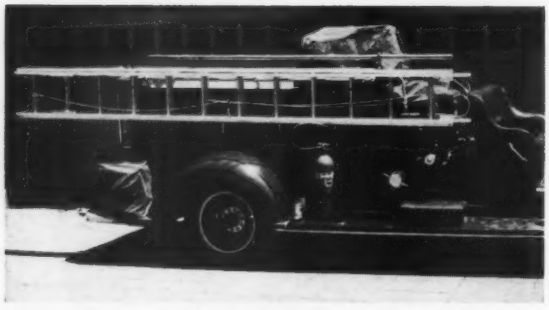
In The Same Location Since 1892

The strong, lightweight Alco-Lite Ladders on this truck are designed specifically for short wheelbase Pumpers



The Pumper pictured above is a product of the American Fire Apparatus Co., Battle Creek, Michigan.

They're perfect as new equipment or as replacement for outmoded wood ladders



This picture shows the PEL and PRL Ladders nesting perfectly in a bracket used for wood ladders. The nested thickness of the PEL and PRL Ladders is 6⅞".

Alco-Lite Pumper Extension and Pumper Roof Ladders are made of high tensile strength aluminum alloy. They are easy to handle and structurally are one of the strongest ladders you can buy. Both feature heavy duty side rails and rungs that will not twist, turn, or break off. The rungs are 1¼" in diameter and deeply grooved to provide a non-slip surface.

The ladders cannot rust, rot, warp, splinter, cause sparks or burn. Extremely strong folding hooks are supplied on the Pumper Roof Ladder.

Aluminum Ladder Company ALCO-LITE

W. Darlington St. Ext., Florence, South Carolina

MOVE-UP FAST WHEN SECONDS COUNT!

"Scotch·shield" Aluminized Fabric protects firemen from searing radiant heat . . . hundreds of degrees of heat that turn back the bravest men wearing conventional clothing! . . . because it reflects more than 90% of radiant heat!

The lightness and flexibility of "Scotch·shield" Aluminized Fabric gives you the mobility to work fast and effectively within the heat barrier! Now you can move-up fast when seconds count to kill a fire at its source or to choke it with chemicals! No more "slow-motion" bulkiness!

Hoods, gloves, coats, full suits and specialized gear made of "Scotch·shield" Aluminized Fabric are fabricated by many experienced manufacturers of protective clothing. "Scotch·shield" Aluminized Fabric is specified and used by our Armed Forces and by many modern city and industrial fire departments. You can use this protection, too!

Send the coupon for name of your nearest supplier and free, informative booklet, "When It Takes More Than Courage!"

SCOTCH·SHIELD* BRAND ALUMINIZED FABRIC

*Formerly 3M Brand Aluminized Fabric

MINNESOTA MINING AND MANUFACTURING COMPANY

St. Paul 6, Minnesota

. . . WHERE RESEARCH IS THE KEY TO TOMORROW

Minnesota Mining and Manufacturing Company
Dept. RBX-79, St. Paul 6, Minnesota

Please send free booklet about "Scotch • shield" Aluminized Fabric, "When It Takes More Than Courage."

Name_____ Title_____

Fire Dept. or Firm_____

Address_____

City_____ Zone____ State_____

OFFICIAL INVESTIGATION SHOWS CHEVRON-4* ANSWERS THE NEED FOR BOTH QUALITY AND THRIFT

Let the impartial laboratory help you make the best buy in police and fire department uniforms this year. An official scientific investigation for a key metropolis (name on request) brought out these facts: Chevron-4,* tested against even premium-priced fabric, rates highest in durability and resistance against shrinkage, fading and tearing.

Chevron-4's unique blend of four top-quality fibers is specially engineered to meet your toughest uniform requirements. Chevron-4* is lightweight, yet warm . . . durable, yet comfortable and pliable . . . parade-dress smart, yet bulldog-tough! What's more, Chevron-4's wash-and-wear convenience means real economy . . . lower cost on the initial purchase . . . minimum cost on upkeep!

In city after city, administrators and fire and police personnel are looking to Chevron-4* fabric to meet and beat the high cost of good uniforms. Find out for yourself how the laboratory rates this wonderful fabric. Write or call today for the Official Investigation File.

FFB CHEVRON-4 UNIFORM FABRIC

*CHEVRON-4 is a Mount Vernon Mills Fabric: Dacron† 47.5%, Orlon† 28.6%, Wool 19.0%, Other Fibers 4.9%. †DuPont Trademark

Mount Vernon Mills, inc.
BALTIMORE 2, MARYLAND

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CHIEFS—

Have you been eager to test the effectiveness of WET WATER under both laboratory and actual fire fighting conditions . . . without a large investment in materials?

NOW YOU CAN!

For the first time we are offering this complete LST Combination TEST KIT & WET WATER to help you prove to yourself the high efficiency of

LOW SURFACE TENSION

LST*

LESS SOAKING TIME

DUAL PURPOSE WET WATER
the scientific way to fight fire.

LST low surface tension wet water offers these outstanding advantages in scientific control of fire:

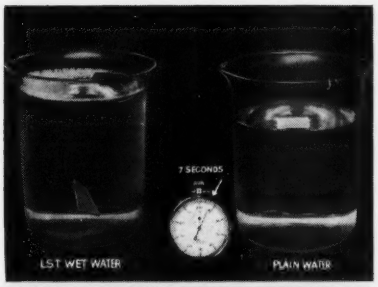
1. Exceeds National Fire Protection Association standards for CANVAS WETTING and WICK ABSORPTION TESTS by wide margins.
2. The only manufacturer to offer a Kit for testing WET WATER under both laboratory and actual fire fighting conditions.
3. Extremely economical. Five gallons of LST Concentrate will treat 500 gallons of plain water.
4. Greatly reduces wetting and penetrating time. See illustrated proof at side.
5. Can be used as both WET WATER and WET WATER FOAM.
6. Leaves no proteinaceous residue when used as WET WATER FOAM.
7. May be used with WET WATER or FOAM EDUCTORS or pre-mixed immediately prior to use.
8. LST WET WATER is available both in standard 5 gallon, I.C.C. steel cans (to treat 500 gallons of water) as well as in LST ONE-SHOT, 6-oz. Poly bottles for use in standard 5 gallon tank or pump extinguishers.

*Trade-Mark

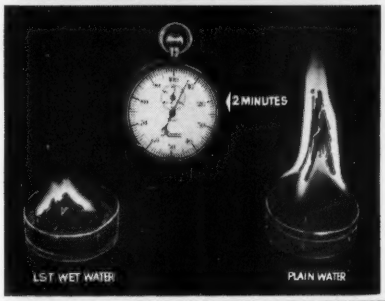
FIRE CONTROL THROUGH CHEMISTRY

Professional
FIRE CHEMICAL CO.
17 West 60 Street, New York 23, N. Y.

ATTENTION DRILL OFFICERS: Demonstrate the efficiency of LST WET WATER under actual fire conditions at outdoor drill. LST One-Shot sufficient for 5 gallon tank or pump extinguisher (packed with kit offer).



In plain water, canvas will float for approx. 15 hours or more. Using LST Low Surface Tension WET WATER, canvas square will sink in 7 seconds.



In WICK ABSORPTION TEST fire will be sustained for 10 minutes before flame is extinguished by slow penetration of plain water. Using LST Low Surface Tension WET WATER, flame is completely extinguished within 3 minutes . . . over 300% more efficient than plain water.

CONTENTS OF LST TEST KIT

LST Combination Test Kit & WET WATER contains all the materials necessary to perform N.F.P.A. CANVAS WETTING TEST and WICK ABSORPTION TEST:

12 Canvas squares (Mt. Vernon No. 6 Grade) 2 Wick absorption Blocks; 2 plastic test containers; 1 poly bottle of LST ONE-SHOT to treat 5 gallon pump or tank extinguisher; 1 Poly bottle of LST 1% solution (Fire fighting strength) for demonstrating and comparative testing; 1 direction sheet for conducting WETTING TEST and ABSORPTION TEST quickly and accurately.

DEALER INQUIRIES INVITED.

SEND FOR THIS LST COMBINATION TEST KIT AND WET WATER OFFER.

A $2.10 value for only $1.00

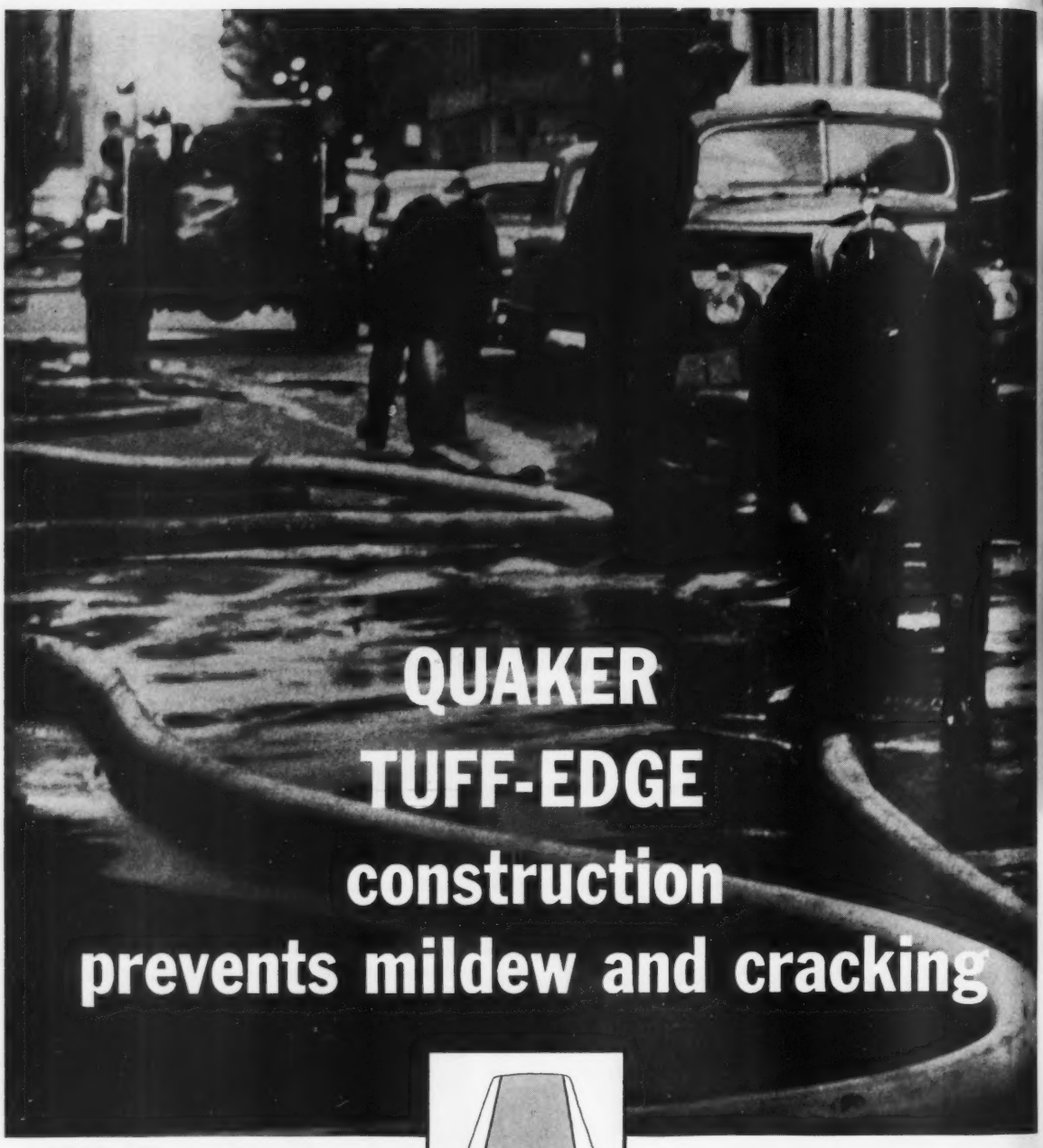
Professional Fire Chemical Co., 17 W. 60 St., N.Y. 23, N.Y.
PLEASE SEND:

_____ LST Combination Test Kit & Combination Offer which includes Test Materials. List Price $1.50 PLUS LST ONE-SHOT, List Price $.60. Total Value $2.10 for only $1.00. FREE DELIVERY

_____ Doz. LST ONE-SHOT @ $7.20 per doz. FREE DELIVERY

_____ LST CONCENTRATE @ $3.50 per Gal.; in 5 gallon cans only. FREE DELIVERY in 10 gallon lots or more.

Your Name _____ Rank _____
Fire Company _____
Address _____
City _____ Zone _____ State _____



QUAKER TUFF-EDGE construction prevents mildew and cracking

Edge reinforcement of synthetic fiber takes repeated folding without cracking, dries fast, reduces weight by 15%, saves storage space.

... Hose lasts at least five times longer, too. The exclusive "Dacron" edge of TUFF-EDGE* hose doesn't absorb moisture—can't mildew in the folds even if it's soaked with water. Cracks can't develop in the frequently-flexed edges. In fact, small and large fire companies that have used TUFF-EDGE report that it lasts five or more times longer than conventional types of cotton-jacket hose.

TUFF-EDGE tests at 600 lbs., is available in 50-foot lengths, in 1½" and 2" diameters. Standard couplings. For complete information, ask your Thermoid distributor or write *Thermoid Division, H. K. Porter Company, Inc., Tacony & Comly Sts., Philadelphia 24, Pa.*

THERMOID DIVISION **PORTER** **H.K. PORTER COMPANY, INC.**

PORTER SERVES INDUSTRY: with Rubber and Friction Products—THERMOID DIVISION; Electrical Equipment—DELTA-STAR ELECTRIC DIVISION, NATIONAL ELECTRIC DIVISION; Copper and Alloys—RIVERSIDE-ALLOY METAL DIVISION; Refractories—REFRACTORIES DIVISION; Electric Furnace Steel—CONNORS STEEL DIVISION, VULCAN-KIDD STEEL DIVISION; Fabricated Products—DISSTON DIVISION, FORGE AND FITTINGS DIVISION, LESCHEN WIRE ROPE DIVISION, MOULDINGS DIVISION; and in Canada, Refractories, "Disston" Tools, "Federal" Wires and Cables, "Nepcoduct" Systems—H. K. PORTER COMPANY (CANADA) LTD. *PATENT #2,833,313

ENGINEERED BY

WARD LA FRANCE

means... ENGINEERED FOR SAFETY

* **New! Seven-Man Cab . . .** permits five of the crew of seven to ride comfortably facing backward. This design conforms with exhaustive tests which show that face-to-rear seating is safer.

* **New! Cab-Over-Engine Design . . .** in which both cab and power plant ride ahead of the front axle for greater safety and maximum flexibility in operation.

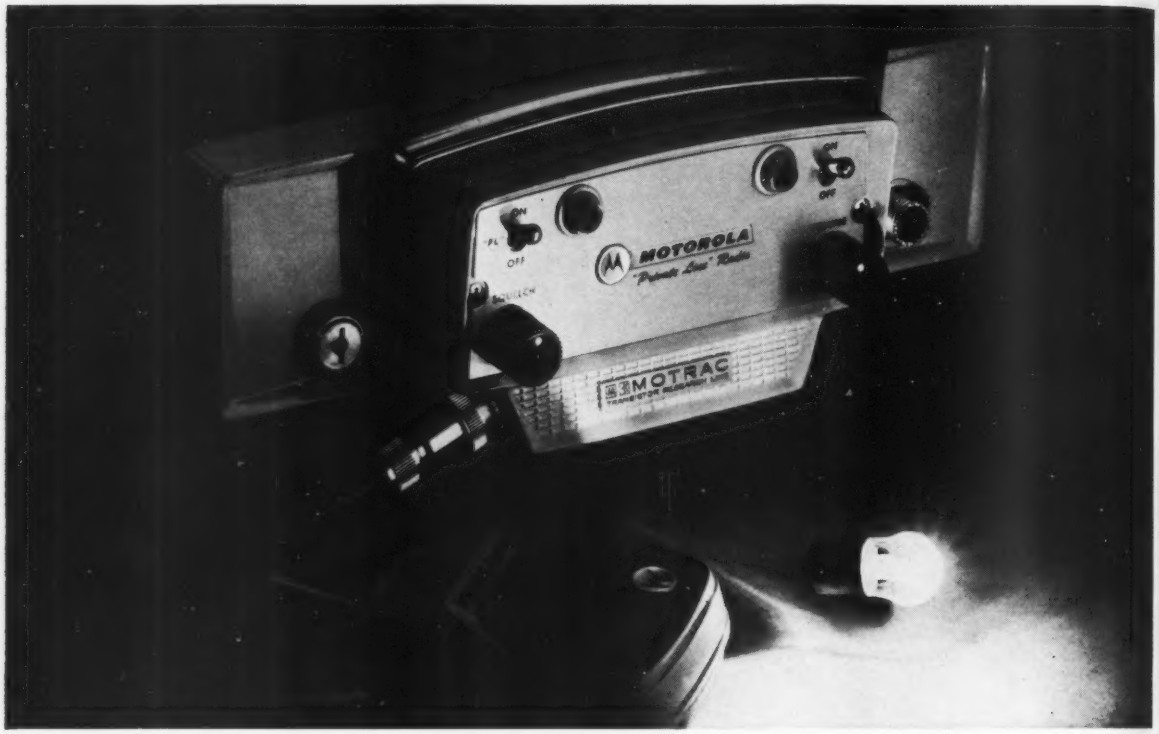
ENGINEERED FOR MANEUVERABILITY

* **Featuring Unbelievable Ease in Handling**
. . . the shortest wheel turning radius — 24 ft.
. . . the shortest front overhang — 56"
. . . the shortest wheelbase — 150"
in the entire industry.
The Ward LaFrance "Fireball" and "Firebrand" Series has an over-all turning radius of LESS THAN 27 FEET

Limited number of dealer franchises available, for information, write:

WARD LA FRANCE TRUCK CORPORATION

Factory and sales office: Grand Central Avenue, Elmira, New York Executive office: 250 Park Avenue, New York 17, New York



Even your dome light draws more current than MOTRAC 2-way radio!

Motorola ends costly power drain problems and idling expense with the first fully transistorized receiver and power supply

What makes Motorola MOTRAC radio the most economical and reliable 2-way radio unit in the annals of mobile communications? Not just one or two new features, but a score of revolutionary design advancements that bring you the very finest set ever engineered.

1. On standby—the MOTRAC receiver draws only a trickle of current—actually 80% less than conventional units—with an occasional increase to maintain crystals at proper temperature for precise on-frequency operation (even your dome light draws more current than MOTRAC radio). Yet, this radio is always poised for instant reception, thanks to its fully transistorized receiver. Result: no life-shortening battery drain . . . no more costly, unnecessary engine idling.

2. MOTRAC radio eliminates the most common maintenance problems: vibrators in the power supply and tubes in the receiver. All are replaced by stabilized long-life transistors.

3. Up to 40°F cooler operation means less aging and strain on components. Reason: no more receiver tube filaments; a more efficient power supply; a battery saver switch to cut off transmitter filaments; and two separate heat sinks—one for power supply, another for transmitter output tubes.

4. The MOTRAC receiver operates directly from the 12-volt battery; its low voltage operation results in less electrical strain on components, assures long life.

5. Traditional Motorola engineering and production excellence are evident throughout MOTRAC radio. Transistors undergo three separate checks, including a week of stabilization at 185°F. Only industrial-type tubes, especially suitable for the rigors of mobile operation, are used in the transmitter.

6. Patient production testing continues under stringent quality control procedures. First, each module is tested. Then each chassis is independently checked. Next, each radio is tested as a composite whole. Finally, the entire radio and associated accessories are checked out as a complete operating system.

7. MOTRAC radio is conservatively designed. The receiver has *even higher* reserve gain than conventional Motorola units to assure *peak performance* for many years. Also, power supply transistors are operated under an exceptionally high safety factor to assure extended service life.

8. Completely independent receiver and transmitter chassis, with no power supply in common, assure reliable reception regardless of transmitter performance.

9. MOTRAC radio offers you 2½ to 3 times higher audio output than conventional sets.

10. MOTRAC radio is designed for split-channel operation. *Both* receiver and transmitter meet critical split-channel stability frequency requirements.

Experienced users have been field testing MOTRAC radios for many months. The results are in—and they're excellent. We'd like to tell you *all* about them. Write, wire or call: Motorola Communications & Electronics, Inc., A Subsidiary of Motorola, Inc., 4501 West Augusta Blvd., Chicago 51, Ill., SP 2-6500. MOTRAC is a Motorola, Inc. trademark.

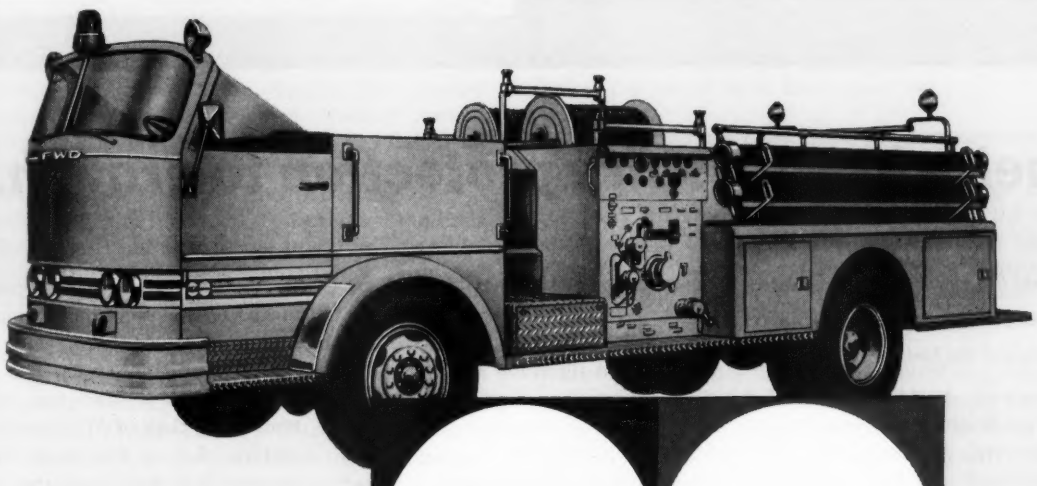
NEW FWD GOLDEN FIRE LINE . . .

FWD is celebrating its "50 years of vehicle ideas" with a completely new fire apparatus line—the Golden Fire Line. Completely new engineering and the finest new styling. It's an "idea" line . . . the best protection any community can have!

New rear drive models bring famous FWD protection to any department, regardless of budget. FWD's proven *four* wheel drive control is also available for those who want the finest in safety and guaranteed "get-there" traction. New junior aerials are now available on all FWD pumper chassis—in addition to FWD-Geesink aerials. New cab-forward styling is the most modern in the industry. In all, the FWD Golden Fire Line has 34 pumpers—500, 750, 1000 and 1250 G.P.M. —and 16 aerials. Write for "specs" now!

50 years of vehicle ideas FWD

Builders of America's finest and safest fire apparatus.



FWD CORPORATION

CLINTONVILLE, WISCONSIN

CANADIAN FACTORY • KITCHENER, ONTARIO

Mayor Florimand J. Bergeron and Fire Chief J. Leo Rivard of Willimantic, Conn., discuss operation of the city's completely automatic Gamewell Fire Alarm System. The mayor, an ex-fire commissioner, is a key influence in progressive fire protection measures.

Their city gears fire protection to growth...

"We add fire alarm boxes and related equipment as fast as city growth demands and the budget permits."

These words by Mayor Florimand J. Bergeron of Willimantic, Conn., exemplify the city's forward-thinking attitude on fire protection. Guarded by Gamewell "Pull" Fire Alarm Boxes since 1887, this modern community of 18,000 has consistently expanded the system. Since 1954 alone, 22 new boxes have been added.

Willimantic city officials feel that the Gamewell System has thoroughly proved itself, both in action and in comparison with other types of fire alarm systems. When major replacements became necessary in 1954, a broad and intensive study of these other types was made. Unanimous decision of the mayor, his fire chief, and the board of fire commissioners was that no other system equalled Gamewell for dependability, efficiency, and economy.

Willimantic now has 90 boxes, including street boxes and those in schools, hospitals, industrial plants, old age homes and supermarkets. An alarm "pulled" from any one is *automatically* transmitted to *all* fire personnel: by direct lines to fire station and fire officers' homes; by means of an air horn to volunteer firemen. No one has to speak a word!

Has *your* community fire alarm protection as positive and as economical as that of Willimantic? Be certain. Let a Gamewell Survey answer this vital question without any obligation. Write THE GAMEWELL COMPANY, 1B Newton Upper Falls 64, Mass.

Gamewell

FIRST...WHEN SECONDS COUNT

FIRE
ENGINEERING
THE JOURNAL OF THE FIRE PROTECTION PROFESSION SINCE 1877

VOL. 112, NO. 7 JULY, 1959

School Safety Progress

A recent announcement by the Fire Protection Education and Information Section, Los Angeles Fire Department, stated that on May 16 a series of tests would begin in the Robert Louis Stevenson School and continue for 17 weeks. The purpose of the work is to study fire behavior in school buildings and may well turn out to be a milestone in American fire service history.

These experiments are not simulated in the ordinary sense of the word, but are conducted as actual fires in an abandoned school building. This is not a ramshackle school, but a two and three-story brick and reinforced concrete structure built in 1925 on filled ground. It has become too expensive to maintain due to settling, and the Los Angeles Board of Education has permitted the fire department to utilize a 65 by 95-foot three-story section for the tests.

Cooperating and assisting the fire department are the California State Fire Marshal's office and the Educational Facilities Laboratories of the Ford Foundation. The latter organization has supplied $25,000 to cover necessary expenses of the work. Major fire protection agencies, manufacturers and industries interested in the problem are also cooperating by contributing time and materials.

In making the tests, the Los Angeles Fire Department hopes to determine the effectiveness of present measures for safeguarding children as they exit from a school in the event of a fire, safer design and construction of school buildings, and better fire prevention and suppression methods. The primary emphasis and objective of this work is the preservation of life. In addition, the tests afford an opportunity to observe the reaction of firemen while using protective breathing devices, as well as to test fire fighting equipment and the effectiveness of fire-retardant paints.

It is estimated that the monetary value of the time and materials donated by all parties concerned will approximate $100,000. The fire department itself is maintaining 11 observers in addition to the stand-by engine company and maintenance personnel necessary for the tests. About 1,000 man-days of effort are involved, to say nothing of personnel supplied by outside interests who are actively cooperating.

A complete report of the work will be written upon completion, but sufficient data has already been collected to enable the fire department to make some very pertinent observations, which tend to reinforce convictions held by many fire service officials. It has been noted that the only time during actual fires in the building when the smoke and heat are considered tenable has occurred when complete automatic sprinkler protection is provided. This has already resulted in the recommendation that only complete systems be installed and that these be equipped with electric water flow alarms interconnected with the fire department alarm systems. The complete enclosure of stairwells has been found to be very effective in preventing heat and smoke from communicating into the various floors of a building. Even with this protection, alternate means of escape are strongly urged. Complete fire and smoke detection systems have been found effective with the latter providing warning very quickly.

In regard to warning, the L. A. fire fighters have found that a three-story school with a good fire drill procedure can be evacuated in from one and one-half to two minutes after a signal has been received. This can be expected to be the normal response time of fire companies located nearby so that this factor is of extreme importance. Without adequate warning and protective devices in schools, it is evident that children's lives will be seriously jeopardized in the event of fire due to the rapid buildup of heat and smoke before the arrival of the fire department.

A few weeks ago a television program commentator made the observation that in spite of all the publicity in the months following the recent Chicago school fire, very little progress has been noted in the cause of fire safety. The experiments which the Los Angeles Fire Department are conducting are a tremendous contribution, tending to refute this statement, and Chief William Miller and his fire fighters are to be congratulated for their efforts.

Fire behavior has always held mystifying elements and sometimes defies logical explanation. In the case of school fire safety, the entire country will soon be able to weigh the results of the observations of the men involved in these tests. It can be expected that every effort will then be exerted to properly use this information which will be made available through the research efforts of a fire department.

Llow O'Brien

PROTECTING NEW YORK'S METROPOLITAN AIRPORTS

Training crash personnel gets top priority in the operation of these vast air terminals

AIRCRAFT FIRE FIGHTING and rescue operations came into being as an adjunct to military operations during World War II. The military, sensing the need for quick rescue, especially at pilot training stations, pioneered in special equipment referred to as "crash trucks" early in 1940. However, it should be noted that even as early as 1936 and 1939, special aircraft fire fighting and rescue equipment was provided at Newark and LaGuardia Airports. This supplemented the structural fire fighting apparatus in "on-the-field" fire stations.

The Port of New York Authority at the time of assuming operations of the major New York airports in 1948, embarked on a program of training personnel in fire fighting techniques and rescue operations associated with aircraft and airport facilities. The development of special purpose equipment was also undertaken.

Early in the leasing negotiations with the cities of New York and Newark, it was agreed each municipality would retain responsibility for structural fire fighting and the Authority would assume responsibility for aircraft incidents within the confines of the airports. Considering daily flight operations at LaGuardia Airport of approximately 950 movements, New York International Airport of approximately 700 movements, and Newark Airport with approximately 400 movements, a high hazard potential exists.

Due to the complex nature of an aircraft incident, an operating plan with the responding municipal fire department was developed as well as a detailed procedure to be followed by federal agency personnel manning the control towers. The degree of cooperation which exists between the cities and the Authority was amply demonstrated during the recent aircraft

Emergency crew and apparatus in action following collision of Super Constellation with parked Viscount at Idlewild in 1958. A second-alarm assignment of city units fought fire in terminal building, fed "nurse" trucks

ground collision and fire at New York International Airport (FIRE ENGINEERING, February 1959).

Complete and adequate training of personnel assigned to airport emergency crews cannot be overemphasized. The Port Authority accomplishes this training through careful selection of personnel, complete indoctrination including classroom study and intensive hot drills and apparatus drills.

Manual issued

A 220-page manual "Airport Emergency Crew Operations," with 15 separate chapters, covers control tower functions, radio and telephone connections, emergency alarms familiarization, airport familiarization, descriptions of fire fighting equipment and special vehicles, personnel, protective clothing, cold and hot fire drill routine, methods and rescue operations. The appendices provide a glossary of airport and aviation terms, a check list for vehicle and equipment inspection by emergency crews, and aircraft schematics or plates covering the types of aircraft presently in operation including the Lockheed Electra and the Boeing 707.

The emergency crew, and how it functions, is of utmost importance because the best equipment money can buy is apt to fail or falter in the hands of improperly selected or poorly trained men. The Port Authority method of selection is comparable to the highest degree of civil service. Every man in airport emergency crew work must be able to work as a member of a team under hazardous conditions and in situations where extreme physical exertion is demanded. He must be possessed of a good physique, good eyesight and good hearing. He must have capacity to coordinate his efforts, to learn quickly and to remember what he has learned. His speech must be clear and precise, his judgment quick and decisive.

All applicants are checked out by the Authority medical department in advance of their acceptance. Only Port Authority police personnel with three years of service may qualify for airport emergency crew training. The applicant's general deportment, attendance record, physical condition and previous departmental history are consulted in the selection. Applicants are screened and any under medical restrictions are eliminated. All men accepted are required to pass a test in the operation of heavy vehicles. After preliminary selection, the special class is completely indoctrinated in a training course of two weeks duration.

The first week consists of instruction in airport familiarization, alarm systems, aircraft schematics, emergency equipment familiarization, functions of tower, radio communications, airport fire protection systems, first aid extinguishing agents, protective clothing, gas masks and inhalators, crash fire fighting and rescue methods, and operation of emergency equipment. At the conclusion of the first week, a written examination is given and those failing to qualify with a passing mark of 70 are eliminated from the class.

The second week consists of participation in hot fire drills and simulated rescue operations. Five practice fires are held each day with all trainees participating. Positions in the crew are rotated so that each man gains experience at the various operating positions.

Before the men are subjected to hot drill conditions, they learn the operating function of each piece of special fire fighting equipment under "cold" conditions so they get the feel of pressure, direction of streams, effect of wind and, above all, complete awareness of the limitations of the various hand hose lines as compared to turrets

By WILLIAM A. O'CONNOR and ROY C. PETERSEN
Superintendent of Police *Fire Safety Supervisor*
The Port of New York Authority

"Hot" drill at training session. In addition to trainees and instructor, each school period includes a photographer who records action, and an observer (left background) for critique following completion of each evolution series

LOCKHEED ELECTRA

GROUND EMERGENCY FEATURES

FUEL

"CHOP THRU" AREAS

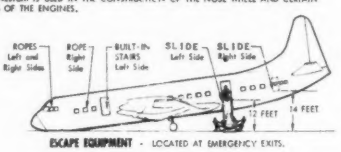
WING SPAN		99 FT.
FUSELAGE LENGTH		105 FT.
OPERATING WEIGHT	EMPTY	60,000 LB.
	MAX. TAKE-OFF	113,000 LB.

FUEL IS KEROSENE

NO FLARES.

FRONT DOOR IS NOT A PRIMARY EMERGENCY EXIT AND IT WOULD NOT BE USEABLE AS A "CHOP-THRU" AREA. THE FRONT DOOR WOULD HAVE TO BE FULLY OPENED TO RELEASE THE FOLDED STAIRS.

MAGNESIUM IS USED IN THE CONSTRUCTION OF THE NOSE WHEEL AND CERTAIN PARTS OF THE ENGINES.



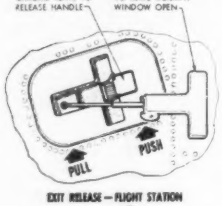
ESCAPE EQUIPMENT - LOCATED AT EMERGENCY EXITS.

MAIN CABIN DOORS ONLY:
PUSH "RELEASE" PLATE, LIFT DOOR TO OPEN
ALL OTHER EMERGENCY EXITS:
PUSH "RELEASE" PLATE, EXIT FALLS INWARDS

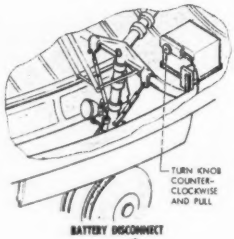
EXIT RELEASE — CABIN
DETAIL A

PUSH HERE ON CHROME PLATE TO RELEASE HANDLE

PULL HANDLE AND CABLE TO SLIDE COCKPIT WINDOW OPEN



EXIT RELEASE — FLIGHT STATION
DETAIL B

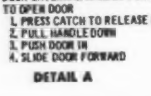


BATTERY DISCONNECT
DETAIL C

Attachment to Supervisor's Safety Letter January, 1959

CARGO DOOR EXTERNAL HANDLE FORWARD, CENTER, AND AFT
TO OPEN DOOR
1. PRESS CATCH TO RELEASE HANDLE
2. PULL HANDLE DOWN
3. PUSH DOOR IN
4. SLIDE DOOR FORWARD

DETAIL A



GALLEY DOOR EXTERNAL HANDLE
TO OPEN DOOR
1. PULL HANDLE OUTWARD AND ROTATE COUNTERCLOCKWISE
2. PULL DOOR OUTWARD

DETAIL B

ELECTRONIC COMPARTMENT EXTERNAL DOOR HANDLE
TO OPEN DOOR
1. PRESS CATCH TO RELEASE HANDLE
2. ROTATE HANDLE COUNTERCLOCKWISE
3. PUSH DOOR INWARD

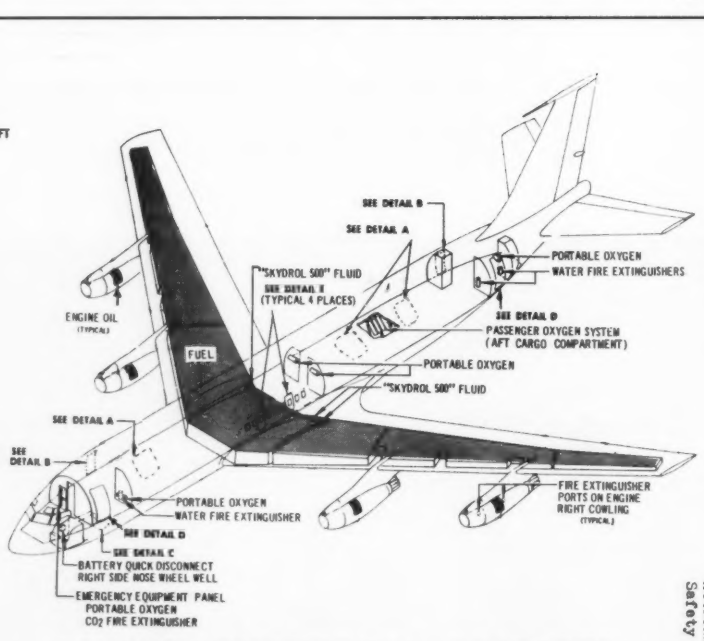
DETAIL C

ENTRY DOOR EXTERNAL HANDLE
TO OPEN DOOR
1. PULL HANDLE OUTWARD AND ROTATE CLOCKWISE
2. PULL DOOR OUTWARD

DETAIL D

EMERGENCY EXIT HATCHES PUSH PANEL
TO OPEN HATCH
1. PUSH IN PANEL
2. PUSH HATCH INWARD

DETAIL E



GROUND EMERGENCY FEATURES

BOEING

707 - 123

Rev 2/25/59

Attachment to Supervisor's Safety Letter February 1959

Pages from ***Port Authority manual identify major features of new type jet and jet-prop aircraft as well as more common piston engine transports***

◀

or other special vehicle equipment such as the carbon dioxide or dry chemical extinguishing agents.

A grade is given each trainee during these burning sessions. Final grades for each candidate are derived from an average of the first and second weeks' performance. The series of drills under fire conditions are conducted so the new recruit learns by operating under high heat exposure. Before each drill a blackboard session is held and the incident or condition is explained. The plan of attack is presented and worked out man for man. Then the condition is duplicated on the drill ground. Drill operations involve test fires of from 200 to 1,000 gallons of fuel with attack from up wind, down wind, across wind, and on the diagonal as the instructor outlines.

To keep this manpower alert and well trained, refresher courses are held at each airport every month. These consist of hot fire sessions and simulated rescue operations. Regular crews, members of the reserve crew and auxiliary members are required to participate in at least three sessions in the 12-month period. Auxiliary crew members are comprised of airport electricians, airport attendants and personnel of fixed-base operators who are trained in crash fire fighting. In addition, as new aircraft are introduced, the emergency crew surveys it to learn of any new problems. Illustrations are obtained from the aircraft manufacturers or the airlines for the craft and added to the airport emergency crew manual.

As part of the individual training course, each position such as driver, turret man, rescue man, crew chief, etc., is fully documented in the "Manual," so that the person manning that post can refer to his duties easily and the drill chief can check his instructions. Nothing is left to memory or chance, during training. For example, here is a detailed list applicable to the driver of a major fire fighting and rescue truck.

Driver's Duties—FFCD Truck

1. After donning necessary and prescribed clothing, disconnect battery chargers, remove wheel chocks, open garage doors.

2. Mount truck, turn on radio, start truck engine and both pumping engines.

3. Check to see that assigned crew is on truck.

4. Ascertain from crew chief or radio location of emergency, check grid map and roll from quarters, giving audible signal. Proceed to scene as directed by control tower or by prescribed route.

5. While en route to scene, use visible aides (smoke, grass, flags, windsock, etc.) as a check on wind direction.

6. If there is a fire, approach head-on with wind at back, if possible, so that rescue path can be made to an exit in the plane.

7. If not possible to approach with wind, and the approach has to be made against or crosswind, approach head-on with truck so a rescue path can be cut to an exit in plane. In this instance, when approximately 125 feet from edge of fire, pull down churn valve and gas throttle levers for pumping engines. Use of ground sweep in this operation will be dictated by good judgment of existing conditions. Come to a gradual stop approximately 50 feet from edge of fire, shift to low gear and advance slowly as directed by crew chief.

8. When approaching with wind, approximately 100 feet from the fire, pull churn lever down, pull ground sweep lever down, pull under-truck nozzle level down, and pull gas throttle for both pumping engines down. Come to a gradual stop 25 feet from edge of fire, shift into low gear and advance slowly as directed by crew chief.

9. Watch for signals from crew chief in charge to shut down ground sweep or under-truck nozzles when not needed.

10. Avoid upgrades if possible.

11. If truck is to be moved, warn crew by two blasts of air horn. This also alerts driver of nurse truck to move at same time.

12. Remain alert, keep engines running, check gauges, make sure truck and operation is safe.

13. If no fire, approach should be in best possible position for ready action in event fire occurs.

The duties of turret man, crew chief, hand line man, carbon dioxide or dry chemical hand line man, nurse truck driver and rescue man are likewise covered in detail. While only one rescue man is indicated in the manpower chart, it should be noted that the operating premise of an aircraft emergency and rescue crew as applied to the large commercial airliner is to establish a relatively fire-free area about the aircraft by blanketing and insulating with foam. During and following this operation, persons can be assisted, guided and removed. As the blanketed area is enlarged, some of the crew men can be diverted to the "rescue" phase.

The type of apparatus handled by these men has been described in the March 1949 issue of FIRE ENGINEERING. Each major airport is equipped with two combination units as primary equipment. A unit consists of a specially designed fire fighting and rescue vehicle which is self-contained, carrying 1,000 gallons of water and 100 gallons of foam concentrate as primary agents and either 800 pounds of high pressure carbon dioxide or 300 pounds of nitrogen-expelled dry chemical as a supplemental agent. The crash truck is propelled by a separate engine permitting full mobility during any operation. Pumping equipment consists of two 500-gpm pumps driven by separate engines with piping and valving so arranged as to provide either individual or series operation. With both pumps in series, a pressure of 300 psi is developed on all turrets, hand lines, or fixed ground sweep nozzles. In the event one engine fails, the truck continues in operation at the reduced, but effective pressure of 150 psi.

A "nurse" truck backs up the major truck. These units carry 2,500 gallons of water and 250 gallons of foam concentrate and respond with the major piece of equipment. By connecting transfer hose lines, water and foam concentrate may be pumped into the crash truck tanks. The operating time of a crash truck is approximately 2 minutes. With a nurse truck connected, this is extended to approximately 6 minutes.

The major airports—New York International, LaGuardia, and Newark—are all equipped in a similar manner. Teterboro Airport is also equipped along similar lines. However, the capacities of the equipment are slightly less, based upon the type of aircraft incident apt to be encountered.

The crews are also trained in the function of checking equipment. This is conducted at the beginning of each change in shift. The men assigned as drivers are required at the start of their tours of duty to check the operation of the vehicle. This includes the oil, gas, water, lights, horn, siren, engine starting and operation, air pressure, brake operation, windshield wipers, tires and battery reading by cells. The pumping engines are checked for oil, gas, water, engine starting and operation, dashboard instruments, main deck instruments, water pressure, hand throttle, governor operation, crank availability and battery readings. A visual inspection of the

Continued on page 556

First-arriving Elizabeth firemen use water streams to protect exposures and cool intact portion of tank as gasoline burns at end of tank and in street gutter. Tactics prevented further involvement of nearby buildings—*All photos by Len Lenzen, Jr.*

How a Gasoline Spill Fire Was

By CHIEF EDWARD F. DEIGNAN
Elizabeth, N. J.

THE PROBLEM of handling gasoline cargo emergencies is one which constantly faces Elizabeth fire fighters. The city is located in the heart of the East Coast refinery area and the hazards attendant to all flammable liquids are present on a 24-hour-a-day basis.

The most recent fire concerns a tank truck loaded with 6,500 gallons of gasoline. The tractor-trailer vehicle was passing through the business area of a residential section on the afternoon of Saturday, April 11. At approximately 5:15 p.m., while in the curbside lane of Elmora Avenue, the right rear of the semi-trailer somehow sideswiped a structural support of an overhead railroad bridge. This caused a jagged gash along the bottom side of the seventh and end compartments of the tank and a smaller puncture on the same level about 2 feet from the larger opening.

The driver of the tractor was unaware of the accident which caused gasoline to gush out and quickly ignite. Believing from the shouts of pedestrians that his brakes were on fire, he pulled to the curb about 400 feet beyond the underpass and stopped directly opposite a drug store at the corner of Elmora and Westfield Avenues. The store was one unit of a row of seven taxpayers.

As the driver left the cab, he was startled to see fierce flames reaching 50 feet into the air. Radiated heat was so intense that the plate glass in the drug store front quickly shattered, and it was impossible to use the corner fire alarm box located 10 feet from the scene. At the time of alarm, the writer and 75 per cent of the first-alarm assignment for this location were at the scene of another potentially serious fire in a department store.

Attack plan prearranged

The first-arriving engine company, quartered two blocks from the intersection, simultaneously stretched two 2½-inch lines and set up a water curtain between the drug store and the fire. One of these lines also served to cool the unaffected compartments of the tank truck. The second engine company also stretched two lines from a hydrant some 300 feet beyond the first pumper. These lines supplemented the first two and provided a greater area of protection. A third engine company and an emergency squad arrived simultaneously at this time. Each squad unit carries, among other items, 60 gallons of foam liquid and two foam nozzles.

A special call for foam stores had already been transmitted under a plan set up in 1954 for just such emergencies. In addition, under this plan, all apparatus responding converged on the scene from different directions. Sizable foam stores, both liquid and powdered, as well as hoppers and foam nozzles, are maintained at strategic locations throughout the city. Emulsifier solvents have not been stocked up to this time.

While the first two engine companies contained the fire and kept the tanker sufficiently cool to prevent further trouble, the third engine stretched two 2½-inch lines from a third hydrant and attached foam nozzles. Additional foam lines were stretched from the first engine and equipped with foam nozzles.

The special call for foam was answered at this time with four tons of chemical foam powder, hoppers and 300 gallons of foam liquid. As the foam lines were brought to play on the fire, the water lines were shifted to cover only exposed buildings. At the

Fire fighters man foam lines wearing proximity hoods and gloves

Fought

height of the fire, four liquid foam lines and two chemical foam lines were in operation.

Men manning the foam lines were equipped with proximity hoods and gloves. The use of the latter equipment was not intended to permit the men to get closer to the fire, but to afford a measure of over-all protection in the event of a "blow." The job was fraught with danger at all times and all units operated with commendable courage.

After a few minutes, when the fire was extinguished, it was possible to see the two holes in the tank and the gasoline pouring out. The small hole was closed by means of a soft wood plug carried for the purpose. It was not possible to close the second hole because of its size and the fact it straddled a bulkhead between the two compartments. Further concern over this point was nullified when a topside inspection revealed that the gas level was slightly above the hole. Approximately 100 gallons of unburned gasoline was then flowing down grade toward a catch basin some 300 feet distant.

It was the consensus of opinion, after a brief conference of staff officers, that an attempt to dam the leakage in this particular instance might create a greater hazard than that presented by the burning tanker. Six or seven cars were parked curbside between the fire scene and the catch basin. What direction the flammable vapors flowing downhill or on the winds would take was questionable. Open flames or spark-producing mechanisms, particularly in subsurface areas of neighborhood buildings were the greatest concern.

The tactics were to permit the gasoline to drain into the sewer catch basin under a blanket of foam. Officials of the municipal sewage disposal system were advised of this action. Shortly after this was done, the 5,900 gallons of gasoline remaining in the undamaged tanks were transferred by pumping into an empty tanker and removed from the area. The disabled vehicle was then towed from the scene. All "No Smoking" signs which had been posted in the area were left in place for three hours after the incident as a safety reminder.

Fire fighters and sewage officials may differ with the strategy of the method of disposing of the unburned, flowing gasoline. The writer has an open mind concerning a flammable liquid "leaker" as to damming or pooling the fluid, or permitting it to flow channelled or curbside to an area remote from the fire scene.

After a careful review of all the circumstances and activities at this fire, it can be stated in all honesty that a recurrence of the situation, with all factors unchanged, would result in the same method of operation. □□

Jagged gash at rear of tank permitted fluid to gush out into street and prevented plugging by conventional means

Foam is applied to fire as water curtain rings vehicle to prevent further damage to exposed drug store

It is expected the new City of Portland will pay for itself out of operational costs savings in less than 10 years and, at the same time, upgrade Portland's waterfront fire fighting facilities
—*Boston F.D. photo by Radzik*

"City of Portland" Protects Maine Harbor

PORTLAND, MAINE, has replaced its old fireboat, in service for more than 27 years, with a new vessel which is described as a "business-like work horse rather than a spectacular glamour boat." The new boat is said to embody operational economy, high output and agility. Its cost was slightly less than $250,000.

The new *City of Portland* was designed for a continuous output of 7,000 gpm at 150 psi, and is powered by two main Cummins VT-12 diesel engines providing 600 hp each.

The boat can maneuver and operate on twin screws and at the same time pump full capacity. This is accomplished by the use of two small Cummins JN 115-hp auxiliary diesels operated through a Y-drive gear box.

Remote air controls permit complete operation of all pumping and propulsion machinery by one man in the wheel house. The bridge controls also allow the pilot to turn the Portland 360° exactly on station without side movement. The remote controlled tower monitor can be positioned from inside, affording protection of personnel from intense heat. Shoal draft and short length allow it to work in close to piers, dump fires, and small boats in trouble.

The *Portland* is 64 feet, 11 inches overall with 18-foot, 6-inch beam and 6-foot draft. For fire fighting, there

New Trends in Fire Promotion Examinations

By VINCENT J. McLAUGHLIN, Ph.D.*

A FIRE FIGHTER, recently promoted to the grade of captain in the fire department of one of our larger cities, was telling of his reactions to the written civil service test he had taken. These tests are getting more difficult every time they are given, he pointed out, and many of the questions are nothing more than an ordeal of terror, leading to the creation of civil service "experts" whose knowledge of fire fighting is nil. "In order to be an efficient fire officer these days," he commented, "it is not enough to have a superior knowledge of fire fighting. One of the best fire fighters in the department failed that test," he continued. "simply because when it came to questions of public relations, personnel administration, discipline and other matters not covered specifically by rules and regulations, he could not give the psychologically accepted answers approved by the non-fire fighting experts. To be really successful on a promotion test," he concluded, "a man needs a doctor's degree in psychology and sociology." Obviously, the captain was exaggerating, but since he had just about made the promotion list, it could be assumed that his low grade was attributable primarily to the questions of the "non-fire fighting experts," as he called them.

* Honorary Battalion Chief, FDNY; Training Consultant and Educational Advisor, Fire College, City of New York.

Pilot has full control of all engines, pumps and tower monitor from wheel house. At left is Portland Chief C. P. Johnson with Captain E. P. Temple, Jr. at the helm -Photo by Captain Ridley, Portland F. D.

are two DeLaval pumps, rated at 3,500 gpm at 150 psi. Two Onan generators, one 15 kw and one 3 kw, each supply 115 volts A.C. While only three men are required to operate the boat, living quarters for four are provided.

The new fireboat carries four McIntire Invincible monitors, one deck monitor with a discharge of 3,000 gpm, two 1,500-gpm deck monitors and one 1,500-gpm remote controlled tower monitor. She is also equipped with ten 2½-inch hose connections. A CO_2 system, consisting of 400 pounds in eight cylinders, may be manually discharged through 150 feet of hose.

The *Portland* has a top speed of 15 mph, can turn in her own length in seven seconds, and make a crash stop from full ahead to dead stop in 12 seconds. Her auxiliary engines can run her up to 8.3 miles per hour and completely maneuver her in the closest quarters.

A feature of this new boat is its Rockwood foam system which can spread 3,600 cubic feet of foam in 23 minutes. The system incorporates automatic control of foam liquid injection, variable percentage selection, individual selection of foam or water discharge and the use of nozzles that can deliver foam, fog-foam, water fog or straight water streams.

Proportioning is accomplished by a balanced pressure system. The foam liquid pump is driven by a power take-off on one of the main diesel engines. This engine simultaneously drives one of the large water pumps when the foam system is in use.

Percentage selection metering valves are located in the foam liquid lines. These are essentially variable orifices and can be set for use with 3 per cent or 6 per cent foam liquid. The system will maintain the desired percentage automatically regardless of pressure or flow variations. Duplex pressure gages in the pilot house and in the engine room indicate foam liquid and water pressures. Streams can be converted from foam to water and vice versa by opening or closing the individual selector valves. A maximum discharge of 8,200 gpm of expanded foam can be delivered for from seven to nine minutes before the tank is exhausted. By pouring cans of foam liquid into a fill trough, the operation can be continued as long as supplies are available.

The *Portland* was designed by John G. Alden & Co., naval architects of Boston, and was built by General Ship & Engine Works, Inc., East Boston. The hull was constructed by Gladding-Hearn Shipbuilding Corp. of Somerset, Mass. □□

The comments of the captain should not be dismissed or taken lightly since his complaint is not a unique one. Many officers will agree with him whole-heartedly. The truth is that questions on civil service promotion examinations for all grades in the fire service are getting more and more difficult. This applies equally to technical and nontechnical questions. Moreover, the captain is partially correct in describing the complexity of certain nontechnical questions which demand knowledge and judgment beyond the "book."

Certainly the ability to answer these questions correctly does not require anything near the professional training of the psychologist or sociologist. As in the case of most gripes about examinations, the captain, like many others who prefer to consider themselves "oldtimers," is reluctant to admit the development of new trends. His reluctance to accept the new types of questions and to prepare himself to cope with them successfully may mean that he has reached the highest grade of his career in the department.

This is most unfortunate because the emphasis upon examining a candidate's ability in situations not specifically covered by rules and regulations is here to stay. The fact is that on each succeeding promotion test over the past few years, more and more of these questions have appeared. Their elimination in the future, therefore, is most unlikely.

A case in point

The written promotion examination to deputy chief of the New York Fire Department illustrates the trend. Prior to 1953, the exam consisted of problems relating to fire fighting and fire administration, the traditional areas in which the fire fighting command ability and judgment of one of the highest grades in the department were tested. In the fire fighting problems the candidate was presented complicated situations which forced him to explain in detail how he would coordinate manpower, equipment and facilities to meet the exigencies of the particular fire situation involved. In administration the questions were geared to test the officer in the "desk" aspects of his job and these problems were very comprehensive.

In fact, all of the questions posed in the previous examinations were extremely difficult and only the most competent officers survived the test. Every answer on fire fighting and fire administration problems required essays or outlines and the candidate was judged essentially on the sequence, quality and number of actions he described as necessary to meet the prob-

lems involved. However, a drastic change has now been made in the format and questions of this type of examination.

Commencing with the examination of 1953, the test for promotion to deputy chief is divided into two parts: Part 1 consists of 100 multiple-choice questions, the possible answers to which were designated by letter choices A, B, C, D or E. These 100 multiple-choice questions concern both technical and nontechnical problems.

In the nontechnical questions, most of the choices are based on principles of management and supervision which are implied but not specified by the department rules and regulations. As in the case of every multiple-choice question, only one of these letter choices is correct and the shades of difference among the four or five possible answers are very slight. Each word of every statement has to be scrutinized and evaluated most carefully.

It is this portion of the test, Part 1, and this type, the nontechnical question, which the captain felt required the additional knowledge of a psychologist or a sociologist. Many candidates upon a first reading of the four or five possible answers feel in many instances two or three answers have equal value. On the other hand, for the multiple-choice questions in Part 1 involving factual information relating to chemistry, physics or fire fighting standards, the candidate faces no such dilemma in arriving at the correct letter choice. Naturally, these technical questions are preferred by the men.

However, this is only part of the problem facing the candidates. The essay-type questions on fire fighting and fire administration previously described, are now contained in a separate Part 2 of the examination, but unless the candidate receives a passing grade on Part 1, Part 2 is not scored or graded. It is obvious that unless a man is successful in answering correctly a certain minimum number of the multiple-choice questions, he cannot pass the test. It is evident that the candidate who is strong on essay answers and weak on multiple-choice has a remote chance of success. Under these circumstances, failure on Part 1 means failure in the entire examination. Promotion tests for deputy chief of department from 1953 to the present have continued to follow this pattern.

The use of multiple-choice questions for promotion to grades beyond captain is relatively recent; however, this type of question has been used for many years for promotion to lieutenant and captain. These tests are limited to 100 multiple-choice questions and no essay questions are included. The promotion test to battalion chief now follows the same pattern as that for deputy chief.

What is significant about all civil service promotion tests throughout the country, however, is the increasing number of nontechnical questions appearing on the examinations. Since these particular questions present unique problems, all candidates for promotion in the fire service are concerned with the trend. This concern has expressed itself in the strong objections of candidates to various aspects of the new type of questions.

Objections to the questions

The strongest objections have come from men like the captain whose entire examination, unlike the test for deputy chief, consisted of 100 multiple-choice questions. These objections are not against the use of multiple-choice questions as such, but rather against certain types of questions which are not related directly to fire fighting problems. These now comprise about 20 to 25 per cent of the multiple-choice examination.

As indicated previously, experience has shown that most men competing for promotions do very well on the multiple-choice questions which involve hydraulics, chemistry, physics, fire fighting techniques and knowledge of rules and regulations of the department. In many instances the candidate can prove his answer mathematically, thus eliminating any possible guesswork. But when multiple-choice questions are presented which involve situations in human relations, the possible conflict of authority between subordinate officers, relations with the public and other areas not spelled out in the rules and regulations of the department, the vast majority of candidates run into trouble. The answers selected by the men may not agree with the civil service "key" or correct answer. It is not a case of the men being right and the examiners wrong. The truth is that the key answers invariably are correct and are based upon very valid principles of management and supervision. Unfortunately, these principles have not been part of the officer's experience or training or have not received the same emphasis as the technical aspects of the job.

Other officers complain that the clue to the correct answer often hinges upon the meaning and interpretation given to a single word in a statement. As a result, an undue amount of time is required for study and analysis of each possible answer. This procedure can be fatal in an examination containing 100 multiple-choice questions on a large variety of subjects which have to be completed within a rigidly fixed time limit. However, it has been the general unfamiliarity of the subjects presented in the nontechnical multiple-choice questions which pose the greatest single obstacle; many men have been frank to admit that some of their answers amounted to an "educated guess."

In promotion examinations for higher grades it is the consensus of most of the candidates that too much emphasis has been placed upon the value of multiple-choice questions in Part 1 to the exclusion of any grading whatsoever of problems requiring detailed answers in Part 2, and that this is unfair. In other words, it is contended that passing Part 1 should not be a condition for the reading, evaluation and scoring of Part 2. The entire test, both multiple-choice and essay questions, measure a man's ability, it is held, and both parts therefore should be scored.

Why these questions?

Two questions concerning promotion examinations that have been asked most frequently by fire officers throughout the country are: (1) What are these multiple-choice nontechnical questions attempting to test? and (2) if these subjects are important to the efficient performance of the job, why are they not included in the rules and regulations of the department? Both questions can be answered in detail, but I shall only touch on them briefly for purposes of this article. With reference to the first: Multiple-choice nontechnical questions attempt to measure or evaluate the initiative, judgment and leadership of officer personnel, particularly in matters involving their relationships and attitudes to superiors, subordinates, associates of equal rank, personnel of other departments and the public.

Essentially, they recognize the fact that as a man advances in rank, his ability to handle men, his personal attitudes towards the job, his competency in matters of discipline, his working relations with other departments and his contacts with the public are just as important for ultimate efficiency of the department as his technical knowledge and skill. This is quite true. It would not be an exaggeration to say that as an officer advances in grade and responsibility, and the number of intermediaries between him and the actual execution of a task increases arithmetically, his ability and

Continued on page 576

Driver conducting evacuation during drill. Note all passengers remain seated until directed to leave the bus in their turn
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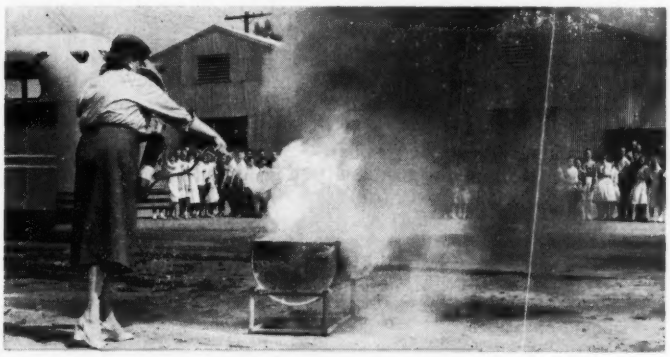
Proper evacuation procedure eliminates crowding at exit doors. Good distance between students keeps exit clear and free of jamming

—All photos Arcadia Police Department



Woman bus driver extinguishes practice flammable liquid fire from upwind after bus is evacuated. Students remain together at a safe distance

California community trains drivers to meet school bus emergencies

Protecting Pupils Outside the Classroom

By **ROBERT C. DICK**
Inspector, Fire Prevention Bureau, Arcadia, Calif.

DESPITE the great emphasis being placed upon safety in schools today, it may be surprising to learn how little is being done in the way of fire drills and evacuation procedures for school buses. This fact was brought out during a general discussion on fire extinguishers with the director of maintenance and operations of the Arcadia, Calif., Unified School District. The 18 bus drivers for the school district had received no training in the use of the extinguishers with which their buses were equipped. Further investigation revealed they had little or no knowledge of what should or should not be done in the event of an emergency.

Information concerning the evacuation of classrooms and school buildings is plentiful, but little has been devoted to emergency procedures for the buses. At a meeting of the safety review board of the school district, this problem was discussed. It was de-

cided to formulate a program which would cover all phases of bus safety, evacuation procedures, fire fighting instructions and general information for the drivers.

During the initial planning stages, it was necessary to experiment with several evacuation systems, before arriving at a procedure which was both simple and effective. The method finally decided upon proved to be the most successful from the standpoint of control over the occupants and time necessary for evacuation.

After the program had been put together, and checked from all angles, it was decided to divide it into two sections: One to be concerned with bus evacuation, and the other to be primarily a class on fire extinguishers. Before going ahead, a handbook was written and an attempt made to cover specifically the driver's duties, regardless of the emergency.

During the writing, drivers, teachers, school principals, and firemen were invited to discuss particular problems they felt might arise in emergencies. After the handbook was finished, although still in rough form, it was submitted to the safety review board for comments and suggestions.

In its finished form, the handbook covers

1. School Bus Evacuation

a. Normal procedure for bus evacuation (collisions, detection of smoke, etc.)

b. Bus evacuation procedure for serious accidents (actual fire, bus lying on side, etc.)

c. General information

d. Procedure for teachers riding on bus

2. Fire Extinguishers

a. Description, types, theory of operation

b. General information

A. Normal Procedure for Bus Evacuation

The following is a description of the procedure to be used if the front door —normally used for loading and unloading passengers—is operable and can be employed without subjecting the students to dangers such as fire, spilled gasoline, etc., as they use it.

The instructions are to be used in either a drill or emergency situation when immediate evacuation of a school bus is desirable. It is of utmost importance that these instructions be followed implicitly where the situation permits. Any deviation during practice will result in some personnel being trained to react differently from those who are drilled in the standard procedure. These differently trained groups, when mixed, will result in confusion and possible panic, if subjected to an actual emergency condition.

The driver of the school bus shall be in complete command of all evacuations. It is mandatory that he act quickly, with assurance, and retain control of all occupants throughout the complete operation.

1. The bus shall be stopped, the parking brake set, engine turned off and red flasher lights turned on.

2. The driver will give one loud blast on his whistle to gain attention. He will then open the exit door. Unless otherwise specified, the "exit door" will be the front door used during normal loading and unloading of the bus.

3. Facing the rear of the bus, the driver shall move to the aisle abreast of the first occupied seats.

4. The driver will give the command: "Remain seated—fire drill!"

5. Still standing in the aisle between the first occupied seats, the driver will then turn, facing the front of the bus.

6. Starting with either the right or left seat, the driver gives a tap on the shoulder to the person nearest the aisle to indicate that this seat may move out. While the indicated persons are in the aisle immediately adjacent to their seat, the persons in the opposite seat across the aisle will remain seated. The driver will hold his hand out toward them, palm out, in a restraining gesture, keeping them in place until the aisle has been cleared.

7. When the indicated seat has moved forward far enough to clear the aisle, the seat being held back will then be allowed to begin evacuation following the procedure outlined above.

8. The evacuation will continue as outlined until the bus is empty of all occupants.

9. As in any fire drill, the persons evacuating the bus will continue a safe distance away and remain there as a group.

10. After the last seat is emptied, the driver will check the entire bus to be sure no one remains. The driver will be at the rear of the bus when the last seat is evacuated and he will make his check from the rear forward. The last seats occupied may not be the extreme back seats of the bus, but the check must be made from the last seat in the bus forward.

11. Moving toward the front of the bus during his check, the driver will remove the fire extinguishers from their brackets and leave the bus. Note: If the bus is equipped with hinged body panels or doors, and a body panel key is necessary to open them to gain access to the engine compartment, the driver will also take the body panel key with him as he leaves the bus.

12. The driver will proceed to the location of the emergency area on the bus, and at that time determine what actions must be taken.

a. If, in the driver's opinion, the emergency is of such a nature that he needs help, he will see that the fire department is notified and will fight fire with his extinguishers until their arrival

b. If the situation is such that the driver cannot control the fire and would needlessly endanger himself in the attempt, he will see that the fire department is notified and will remain with his passengers until the arrival of fire fighters. At that time, the driver will make himself available to the fire department.

Using this method, 60 students of fifth and sixth-grade levels were repeatedly evacuated from a standard school bus in an average time of 52 seconds. Prior to this test, neither the driver nor the students had received any instructions, or practice, in bus evacuation. The procedure is practically self-working in actual operation, and in many respects is very similar to the regular fire drill conducted in school classrooms. It was found that this plan could be used successfully at all grade levels, including primary, with a minimum of difficulty.

The procedure outlined above is, of course, only a portion of the program, and as mentioned before, may or may not be applicable, depending upon the nature of the situation. In teaching the evacuation procedure to the pupils, it was found that it could be taught by the drivers to their passengers with comparative ease.

The only instructions necessary to an untrained group is that they cease talking, remain seated until directed otherwise, do not run or jam up in the aisle, and when leaving the bus to

Continued on page 556

"Key" Solution to a Fire Protection Problem

Florida island residents form volunteer fire department

By **JOHN H. JEBENS***

ACROSS A CAUSEWAY, several miles from the heart of Miami in Dade County, Fla., lies a small island called Key Biscayne. Businessmen of Miami and its environs use this rambling community as their permanent home. Normal population is about 5,000 residents with an increase of perhaps a thousand during the winter months.

The only fire protection afforded the area up to 1956 was the Dade County Fire Department which responded with a 500-gpm pumper and two men. This apparatus made the run in about 25 minutes. A transplanted Long Islander with several of his neighbors and friends gathered together one evening to discuss the feasibility of organizing a fire department. The consensus was that a dire need existed for more rapid service.

In September 1956, a charter was granted by the State to organize the Key Biscayne Fire Department. A group of residents began forming a volunteer department built along the lines of departments found in Long Island, N. Y. It was quite simple. Chief James B. Robbins had served with the Babylon, N. Y., Fire Department; Assistant Chief T. O. Sykes with the Baltimore, Md., Fire Department; D. A. Miller, captain of Engine No. 1, was a former volunteer with the Port Washington, N. Y., Fire Department, and Captain R. H. Schellenberger, Rescue No. 1, had served in the Decatur, Ga., Fire Department.

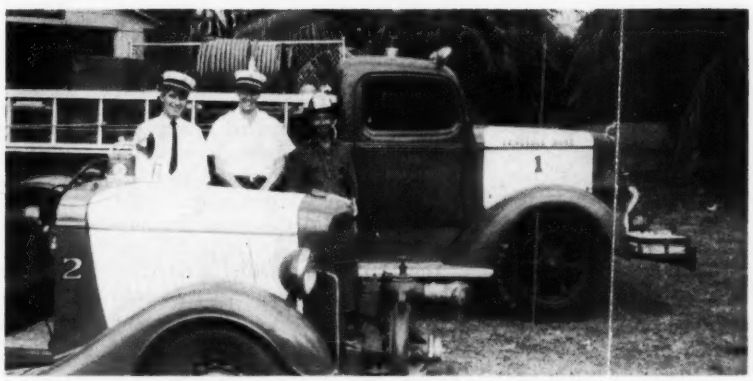
Residents of Key Biscayne were at first skeptical since four previous efforts to form a department had failed in recent years. But the leadership of experienced men made the department a success.

Through the generosity of Mr. Grover Loening, the first piece of ap-

Continued on page 556

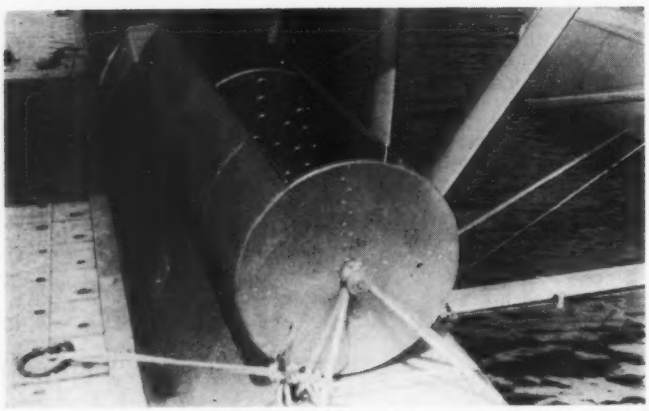
* In his position as chief fire protection engineer of the Borden Co., the author travels widely throughout the United States and Canada. This article was written while visiting friends on a recent inspection visit in the South.

Apparatus lined up in front of "open quarters" built by members. Lack of funds limits equipment to barest essentials



Chief Robbins (center) with two of the department's officers and vehicles. Note preconnected hose on bumper mount of Engine 1

Seaplane Attack on Forest Fires



Closeup of float tank shows baffle plate and filler pipe. Tank is emptied by rotating with lever and cable control

Eastern conservation officials analyze experience of first aerial bombing on Adirondack fire

By CLARENCE PETTY
Pilot
and
GEORGE S. YOUNGS
District Ranger
Conservation Department
State of New York

AERIAL WATER and chemical bombing techniques for forest fire control, developed on the West Coast, have led many conservation officials in other parts of the country to investigate possible adaptation to the varying conditions. Experiments in the use of seaplanes have been conducted in the past and indications are that these aircraft can be readily adapted to "lake country" type of terrain.

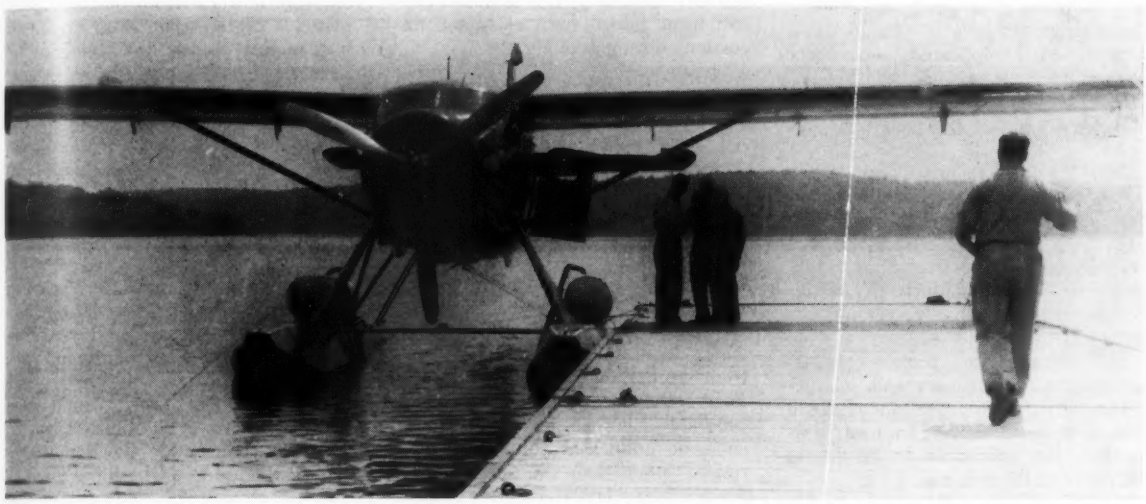
During the spring of 1957, the Department of Lands and Forests, Forest Protection Division, Ontario, Canada, tried out a set of tanks with filler pipes installed on the floats of a DHC-3 Otter seaplane. This was the result of experiments covering several years to develop equipment and a method of picking up water and delivering it to a fire. The superintendent of forest fire control, New York State Conservation Department, and other conservation department personnel went to Dorset, Ontario, during July 1957 and witnessed demonstrations of this equipment. It appeared to show promise of being a practical method of direct attack from the air which would aid the forest fire suppression effort.

The DeHaviland Otter is designed primarily for "bush" flying in Canada and the far north. It is equipped with a Pratt and Whitney 600-hp motor and its slow-flight and high-performance characteristics for getting in and out of small landing areas lend themselves well to forest fire control flying. Since the Adirondack Mountain area of New York State has many lakes and ponds suitable for seaplane operation and the Otter carries a relatively heavy load for a single-engine plane, it appeared suitable for the purposes desired.

In April 1958, the New York State Conservation Department took delivery of an amphibious Otter and a short time later installed tanks with filler pipes similar to those first used in Canada. Each tank is 6 feet long, 22 inches in diameter, and holds about 100 gallons of water. A center baffle reduces surging and a 2½-inch filler pipe extends from a short distance above the float keel to a point over the open topped tank. The tanks are filled by bringing the plane down onto the water from flight in normal landing attitude and applying sufficient power to keep the plane running on the float step at about 40 miles per hour. The forward motion of the plane forces water up the filler pipes, completely filling the tanks in from 15 to 20 seconds. Pulling a control lever, attached to cables, rolls the tanks over, emptying both simultaneously.

The pattern of the water as it hits the ground depends upon several factors, three of the most important being density and kind of forest canopy, height from which the drop is made, and the wind direction and velocity. The following are figures secured in tests over an open area by the Ontario Department of Lands and Forests:

Direction of Wind	*Wind Velocity (mph)*	*Pattern (Ft.)*
Into wind	10	285 x 85
Down wind	10	315 x 85
Cross wind	2	375 x 75
Cross wind	8	260 x 100
Cross wind	16	285 x 135



"Otter" seaplane mounts water tank on each float. Taxiing across lake surface permits filling "on the run"

Where a dense forest canopy is present, it may require two or more applications over the same spot to obtain a reasonably satisfactory penetration to the ground surface.

The first actual fire in New York State on which the tanks were used occurred in the towns of Jay and Chesterfield, Essex County, on May 8. Before being brought under control on May 12, it burned over 350 acres of mixed hardwoods and softwoods and logging slash. It came after a prolonged spring drought in rugged terrain varying in elevation from 800 to 1,600 feet above sea level, making control very difficult. It was fought by over 200 fire fighters under the supervision of five forest rangers. In addition to the float plane, two bulldozers were used to assist the ground crews.

Athough observation flights were made on the first day of the fire, no water drops were made. It was obvious that with only one tanker plane available, the conditions of the fire on that day would not permit any advantage to be gained in a direct attack from the air. When we flew over the fire the first time, a large portion of the perimeter, which appeared to be more than a mile in length, was crowning in a brisk wind. Several air tankers might have been helpful, but under such conditions one tanker would be ineffective.

On the second day between 20 and 30 water drops were made at various places along the fire perimeter to stop the running surface fire and keep hot spots from breaking out.

During the morning it was possible to pick up water from a small lake about six miles from the fire with an elapsed time of about 12 minutes between applications. In the afternoon, wind conditions made it necessary to fly about 12 miles from the fire to a source of water with an elapsed time of about 20 minutes between applications. The water was dropped from 75 to 100 feet above the ground surface. The forest rangers in charge of the ground crews stated that the water drops were helpful both in holding the fire from spreading and in aiding the morale of the fire fighters.

It is necessary to understand the limitations of the direct attack method from the air as well as to recognize its possibilities. At certain times it may be impractical or unsafe to attempt air attack methods. Such times would be in high gusty winds or very turbulent air when it would be unsafe to fly at low altitudes due to downdrafts or the dissipation of the water from evaporation and/or drift would be excessive. Oftentimes the worst fire weather occurs during high winds.

It is also apparent that more than one air tanker is necessary for best results, since the elapsed time between applications is reduced. This is particularly important where the distance between fire and water source is more than about three miles or when drought conditions prevail with low air humidity, high temperatures and winds which tend to dissipate moisture very rapidly.

Probably the practical maximum limit for distance between the fire and water pick-up point with this equipment is between 10 and 15 miles. There is some water loss from the tanks due to spillage and, of course, the greater the distance, the greater will be the loss of water. The economy of the operation must also be considered since flying is relatively expensive. The value received from the cost of air delivery of water per gallon must be weighed against the benefits received.

In general, it appears that direct attack from the air on forest fires in New York State would have its greatest use on the small fires in an isolated area where ground crews require several hours to reach the scene. Air drops may be made to hold the fire from spreading until the ground crews arrived. Secondly, on the larger fires where the length of the perimeter and the nature of the fire or spot fires indicate, air drops will aid the ground crews in a holding action.

We believe that there are considerable possibilities for improving the equipment now in use. The trend may also be toward multi-engine planes with greater load-carrying capacities and better safety factor. It is probably safe to say that air tankers will be used more in eastern forest fire suppression as improvements in equipment take place and fire control personnel have the opportunity to experience the advantages of this support from the air. However, we think that no one should be misled by the belief that direct attack methods from the air are about to eliminate fire fighters on the ground. □□

SCHOOL BUS EVACUATION

Continued from page 552

stay together as a group a safe distance away.

Since no complicated movements or additional commands are needed after the initial order of "Remain seated—fire drill," it was found that even the youngest passengers had no trouble in correct participation.

All classes were conducted using the "explanation, demonstration, application" technique. Each subject was divided into classroom and practical periods and conducted along informal lines with questions and discussions encouraged.

In the practical portion of bus evacuation, the drivers and instructor acted as passengers on a school bus, with each driver, in turn, conducting the procedure as he would normally on his own bus.

During the two-day session on fire extinguishers, each driver brought to class the extinguishers carried on his bus. Arrangements were made with a local firm for immediately recharging the extinguishers as they were used. Drivers were given training of flammable liquid fires, using an oil-gasoline mixture in a 50-gallon drum that had been cut in half lengthwise and was resting on the ground. Care was taken to see that they realized the limitations, as well as the capabilities of their extinguishers.

The last day of class was devoted to combining all that had been learned into one final exercise. Each driver pulled into a designated area with his bus loaded with children and simulated an emergency condition. Passengers were evacuated and adjacent flammable liquid fire was extinguished by the driver.

As an interesting sidelight during the evacuation school, a commercially owned, leased, school bus passing through Arcadia became involved in a minor fire while filled with children of elementary age. The driver, from another city, had received no training in emergency procedures and did practically nothing right. This is not a reflection on his ability, but only points up the need for an organized plan. Although the emergency program for the Arcadia drivers had not been completed at the time, two of the drivers whose routes carried them by the involved bus, stopped and extinguished the fire and maintained control over the frightened children.

The fire had been caused by a leaking line which dropped oil on the hot exhaust manifold and resulted in a dense, smoke-filled bus interior, with subsequent near-panic of the children and the driver. On-the-scene interrogation of the two Arcadia drivers revealed that the knowledge they had applied in the extinguishment of the fire, and the control of passengers, had been gained from classroom discussions during training.

Practice sessions

Drivers use the drill in lieu of normal unloading operations in the morning deliveries at school. These drills are conducted at least once a month at the driver's discretion.

The program has been wholeheartedly accepted by the drivers, most of whom had individually wondered what they would do should emergency action become necessary. Aside from recharging extinguishers used during the fire fighting portion, this program offers no financial problem since no additional equipment is required other than the school buses, fire extinguishers and allied material already on hand.

Limited copies of the handbook containing the complete evacuation instructions are available without charge upon written request to the Arcadia Fire Department. □□

KEY BISCAYNE

Continued from page 553

paratus, a 1937 Mack hose wagon, was purchased in Jacksonville. The county installed a front-end 500-gallon pump and did much other work to make the unit serviceable.

The engine carries roof ladders, 450 gallons of water with 1½-inch preconnected lines, a selection of forcible entry tools and back-pack pump cans for brush fires.

A second piece, the Ford rescue truck, was obtained from Pan American Airways surplus property. It is provided with an inhalator and stretcher for emergency purposes, is equipped for brush fires and mounts a 300-gpm pump. The Lion's Club has donated a resuscitator which is operated by a trained crew.

The apparatus is housed in an open-front structure located on property loaned to the department by the Matheson family. The building was constructed by the members with material donated by local supply houses.

The apparatus and buildings are covered by insurance. To date, because of budget restrictions, the members are not covered against personal injury.

The department roster now bears the names of 25 men ready to extend assistance to their neighbors. Forty per cent of the personnel are employed on the island, consequently, the response to a daytime alarm is above the average of many volunteer departments. Both companies drill monthly and 10 members have completed a 60-hour course in fire fighting tactics under the tutelage of Lieutenant Gil Haas of the Miami Fire Department.

The public water supply provides 60 psi from well-spaced hydrants on a gridded system. However, a problem which cannot be solved immediately is the standardization of hydrant threads. Half of the island has National Standard nipples on the hydrants, while the remainder have an odd thread designed for foreign use and installed by a real estate development corporation. In addition, many high-valued structures are remote from any water supply, which hampers the efforts of the department.

Since its inception the department has responded to 14 building fires, 56 brush fires and eight emergency calls, including the dispatching by shotgun of a 5-foot snake by Chief Robbins in the living room of a frightened householder. The most serious fire to date was in a concealed space at the Jamaica Inn, a famous restaurant. Through the determined efforts of fire fighters, the loss was kept to less than $2,000.

Although the members of the Key Biscayne Fire Department have surmounted many difficulties, they are a rugged lot and not easily discouraged. They are hopeful that further education of the public and favorable public relations will strengthen the department so that it may better serve the community. □□

AIRPORT PROTECTION

Continued from page 545

outside of the vehicle is made. A radio test is made of each vehicle radio for reception, transmission, the condition of the headset and microphone and the antenna.

Once a week a complete, more detailed examination is made of each vehicle and its equipment. This is reported on a special record. The vehicle is washed completely after each inspection and once a month is waxed and polished.

The mechanical equipment is subject to check by the crew men, but its maintenance and repair is conducted by personnel of the automotive and central maintenance engineering divisions. Any malfunction is reported as soon as discovered, and corrective action taken. If necessary, a piece of equipment is withdrawn from service and a substitute or stand-by unit is temporarily assigned to cover the va-

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Valve
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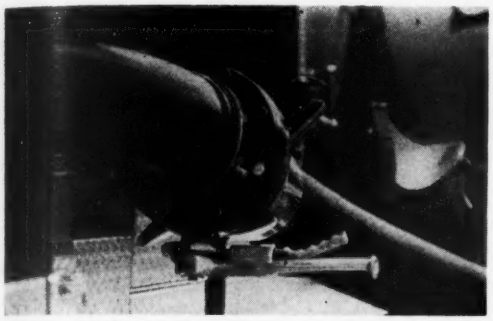
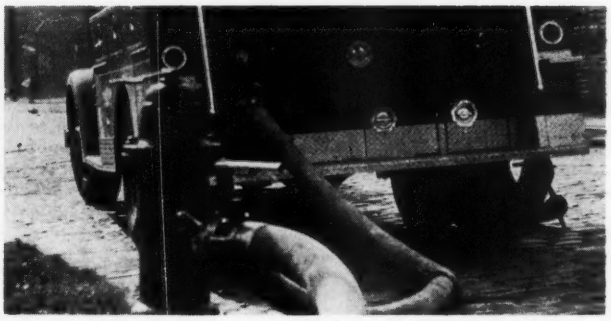
short cuts and gadgets



Valve connecting hard suction to pump for drafting water from one of the many fire cisterns in Louisville

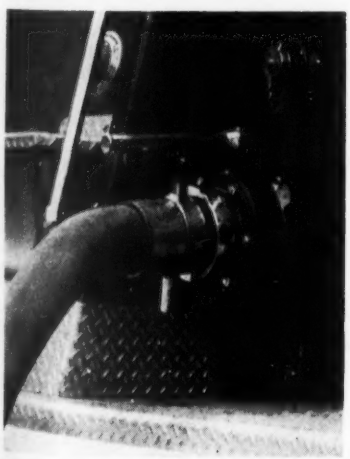


Valves are used at front and rear intakes on new apparatus, with pre-connected 4-inch soft suction attached to speed up connection to hydrant

Pumper takes water from outlet. With second valve on other outlet, a second unit can connect

Two pumpers take water from same hydrant; valve facilitates operation. Note hard suctions wrapped around front of pumpers

Hydrant Valves Speed Suction Hookup



Hydrant valves are equally adaptable on front or rear pump suction. In this instance, valve is used on rear of pumper with soft suction attached, speeding up hydrant service—*Louisville F.D. photos*

Pumpers of the Louisville, Ky., Fire Department carry hard suction permanently attached with a "Squirrel tail" to a side pump suction intake. The hose is carried "wrapped around" the front fenders and radiator of apparatus for handy use of the many fire cisterns throughout the city's water supply system. In addition, the front and rear intakes of new apparatus are equipped with hydrant valves and pre-connected 4-inch soft suction, which speed up connection to a fire hydrant. Thus, whether hydrant or cistern is to be employed, the pumper is assured of a quick hook-up to water.

The Louisville department first used a quarter-turn Keystone hydrant valve in 1955 to replace a defective gate-type valve. Due to its satisfactory performance and comparable cost, Louisville has continued to replace all gate valves with the quarter-turn valves, and now uses more than 30 of the units. In addition, the department has included installation of the valves throughout on the last eight new pumping units purchased.

While basically a butterfly valve, it is somewhat unique in design because it shuts off completely against low pressure or vacuum as well as the full line pressure for which it is rated. The valve closes against a resilient seat firmly held inside a narrow ring. The seat is under compression, thereby effecting a seal at both points where the stem passes through it and around the periphery of the disc. A corrosion-resistant bushing with two O-ring seals around the top of the stem prevents leakage to the atmosphere should the seat fail. When the valve is closed, the resilient seat exerts positive pressure against the butterfly disc assuring a tight shutoff.

Complete replacement parts, O-rings and valve seats are quickly available for the various sizes to completely recondition the valves. This was not the case with the gate valves formerly used. Usually a leaky gate valve requires a considerable amount of machine tooling to repair, and many times this will not be satisfactory.

FALSE ALARMS

Sprinkler System

Their wives chanced to leave town at the same time, so the first-floor apartment dweller and the occupant immediately above him decided to go fishing.

As they cast in a lake 50 miles from home, the downstairs resident said: "I keep worrying about a cigar I was smoking before we left. I'm afraid I left it burning on my wife's new bedside table."

"Well, you can stop worrying," replied his companion. "I left my bathtub water running.

One nice thing about a housetrailer is that you have a place to live while looking for a place to park.

Kinkchaser recently remarked his wife wore the pants so he was looking around for a skirt.

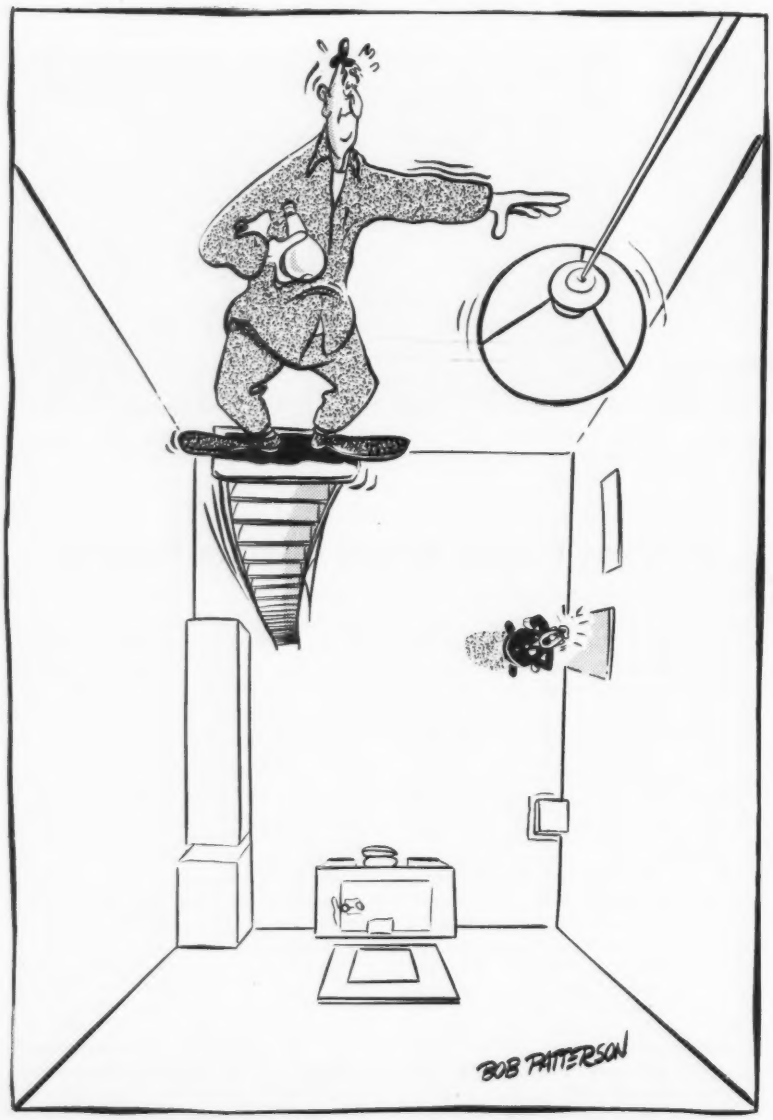
An old man was sitting on the porch of a little village store when a big shiny car drove up with two strangers in it.

"Hi, there," one of them called. "How long has this town been dead?"

"Not long," answered the native. You're the first buzzards I've seen."

Sweet Young Thing: "Gee Whillikers, it's nearly midnight. You better get going."

Confident Boyfriend: "Okay baby, turn out the light."



"Remember, Parmalee—one false move and you'll be billed for that light globe!"

A third grade teacher asked her pupils to draw a picture of what they wanted to be when they grew up. The pictures were of nurses, space cadets, firemen—but one little girl handed in a blank sheet of paper. "Don't you know what you want to be when you grow up?"

"Sure I know," retorted the little girl. "I want to be married, but I don't know how to draw it!"

The Old Timer Sez—

"If you think that you're having trouble supporting your wife, just try not supporting her!"

Three salesmen were sitting in a tavern having a few rounds of beer.

"I hate to see a woman drink alone," said the liquor salesman.

"I hate to see a woman eat alone," said the grocery salesman.

The mattress salesman remained silent, like a gentleman.

Candid Comments

When a woman butters up her husband, chances are she's going to put the bite on him.

Chief's Aide: "Did you hear about the two girls who walked into the exclusive men's club last week?"

Dispatcher: "No, what happened?"

Aide: "One became panicky and ran. The other remained calm and collected."

Shift Cook (looking out window): "It looks like rain."

Driver (eating): "Yeah, but it smells a little like coffee."

Male voice (over telephone): "Say, Mabel, may I come over tonight?"

Female voice: "Sure, Bill, come on over."

Male: 'But this isn't Bill."

Female: "This isn't Mabel, either, but come on over."

Wife: "I heard you swearing something terribly and talking to yourself while you were taking a bath, John. That's a terribly bad habit."

Hubby: "I wasn't talking to myself; I slipped on a cake of soap and was talking to it."

Police Chief: "How's business with you?"

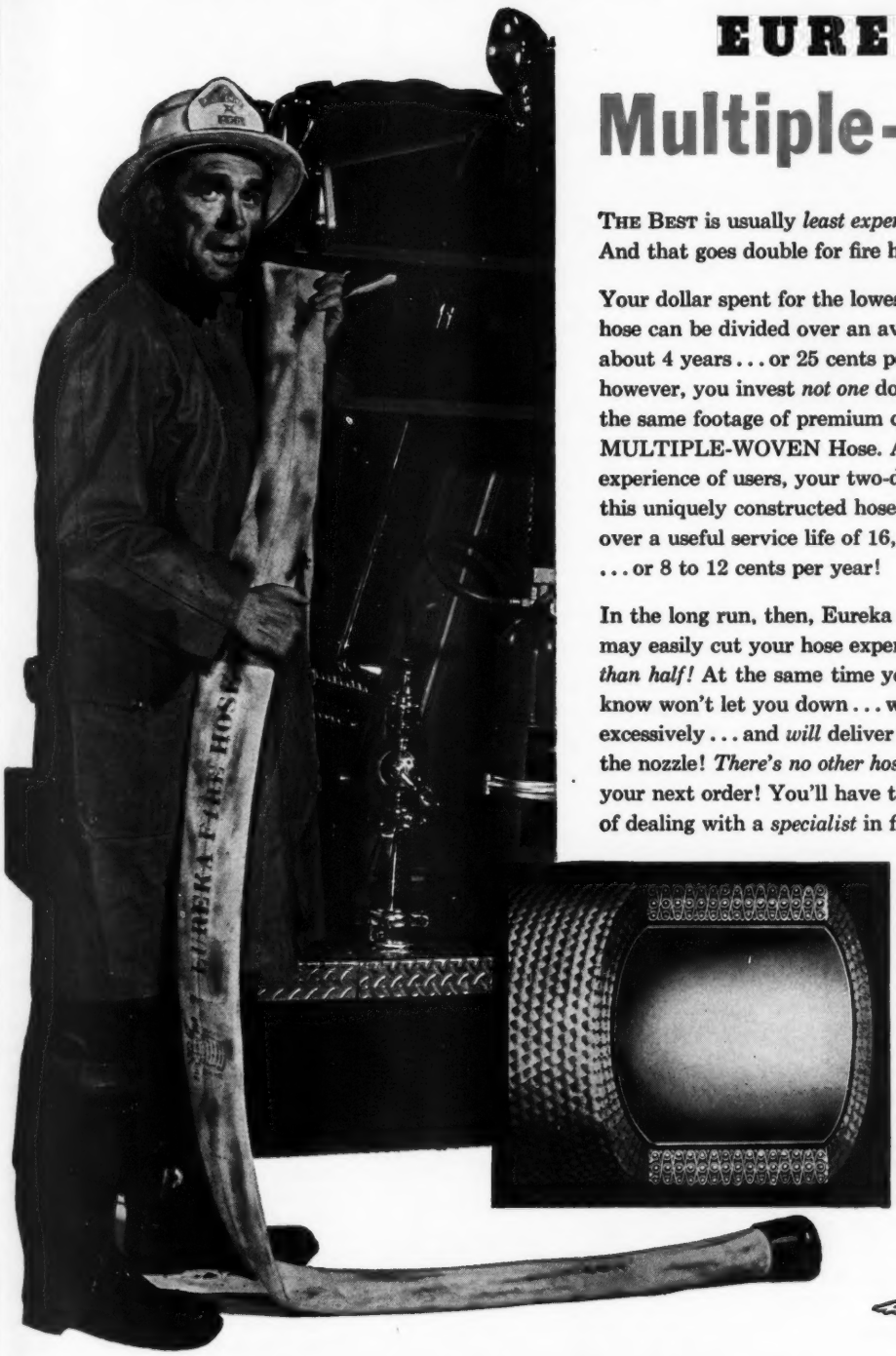
Fire Chief: "Well, you know how it is. The fire business is like sex. When it's good it's wonderful. When it's bad it's still pretty good."

A hug is energy that has gone to waist.

Let's talk DOLLARS and SENSE about

EUREKA

Multiple-Woven



THE BEST is usually *least expensive in the long run.* And that goes double for fire hose! Here's why:

Your dollar spent for the lowest-priced approved hose can be divided over an average service life of about 4 years . . . or 25 cents per year. Suppose, however, you invest *not one* dollar but *two dollars* in the same footage of premium quality Eureka MULTIPLE-WOVEN Hose. According to the experience of users, your two-dollar investment in this uniquely constructed hose may well be spread over a useful service life of 16, 20 or even 24 years . . . or 8 to 12 cents per year!

In the long run, then, Eureka MULTIPLE-WOVEN may easily cut your hose expenditures *by more than half!* At the same time you'll have a hose you know won't let you down . . . won't warp or writhe excessively . . . and *will* deliver maximum pressure to the nozzle! *There's no other hose like it.* Specify it on your next order! You'll have the added satisfaction of dealing with a *specialist* in fire hose!

All plies of Eureka Multiple-Woven Hose are woven *and interwoven* simultaneously, leaving no space between plies for collection of water, dirt or mildew.

"For greater protection to life and property"

EUREKA FIRE HOSE

Since 1875, Specialists in Manufacturing Circular-Woven Cotton Rubber-Lined Fire Hose

1 Market Street • Passaic, New Jersey

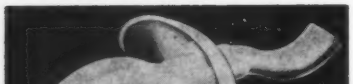
Division of United States Rubber

WHAT'S NEW

Among the Manufacturers

- products
- processes
- personalities

J & J Resusitube



A simple new "breathing tube" for artificial respiration has been announced by Johnson & Johnson, New Brunswick, N. J. Called the "Resusitube," it is an approved model of a device originally developed by Dr. Peter Safar, chief of the department of Anesthesiology, Baltimore City Hospitals, on a contract with the United States Surgeon General. The pocket-sized, S-shaped tube of translucent white plastic is fitted with a flange which covers the victim's mouth to prevent air leakage. It comes in two sizes, one for adults and children over three; the other for children under three and infants, and is available at local drug outlets.

Rochester, N. Y., Adopts Power Saws for Trucks

The Rochester, N. Y., Fire Department, after weeks of exhaustive tests, has decided to equip each of 11 ladder trucks with a gasoline-powered chain saw. The chain saw selected is the five-horsepower, direct-drive, gas-powered tool manufactured by Remington Arms Company, Bridgeport, Conn.

Volclay Bentonite Gel

The American Colloid Co., 5100 Suffield Court, Skokie, Ill., is marketing "Volclay" bentonite for use in aircraft "bombing" of forest and brush fires. This volcanic clay, when mixed as a slurry with about 92 per cent water, is said to form an effective fire retardant gel and may be employed in aircraft drops for forestry purposes.

Stonco Emergency Lights

A line of new emergency floodlights made by Stonco Electric Products Company, 333 Monroe Avenue, Kenilworth, N. J., has everything from a rugged 500-watt portable unit to a handy, 1¼-pound, 150-watt light for all-around utility use. Included in the new models are lightweight portables in brilliant fire-red finish.

Fire Boss in Fort Worth

Fire Boss, Inc., manufacturers of self-contained portable fire fighting equipment, has moved from Odessa to 4117-B West Vickery Street, Fort Worth, Texas.

Its equipment is designed for municipal, industrial and military fire departments as well as refineries, airports and offshore installations. It is said to be capable of handling all types of major fires including exotic fuels.

Mann Edge Tool Expands

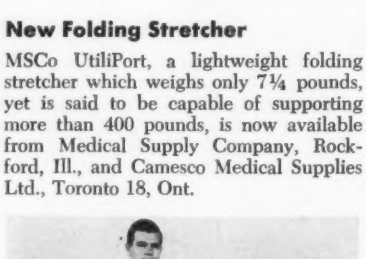
Mann Edge Tool Co., Box 351, Lewistown, Pa., has acquired the O. A. Norlund Company, Williamsport, Pa., manufacturers of metal products including foot safety devices such as "Norlux" ice creepers, heel cleats and sole chains.

Luminous Warning Flag

Industrial Products Co., 3095 North Fourth Street, Philadelphia 33, Pa., announces a luminous red warning flag, uniformly bright on both sides, giving extra visibility day or night. It is made of long lasting vinyl-bonded-to-nylon material with super-strength Dacron stitching. The flag is also available in high visibility yellow and yellow-red combinations.

New Folding Stretcher

MSCo UtiliPort, a lightweight folding stretcher which weighs only 7¼ pounds, yet is said to be capable of supporting more than 400 pounds, is now available from Medical Supply Company, Rockford, Ill., and Camesco Medical Supplies Ltd., Toronto 18, Ont.



Of aircraft-type aluminum tubing and vinyl-impregnated nylon construction, it is claimed to be fast in operation, and special hinge sleeves quickly slide into position for positive locking.

Great Lakes Suppliers Form Social Club

A nonprofit organization, the "Great Lakes Box 15 Club, Inc.," has been formed by 15 fire equipment manufacturers and salesmen. Its purpos . is to entertain the fire chiefs of the Great Lakes Division, IAFC, their wives and friends at the forthcoming annual conference to be held in Grand Rapids beginning August 30.

Officers of the group are: C. T. McGraw, president; Stuart J. Spalding, vice president; Fred Fischl, treasurer; and Grace C. Clark, secretary. The board of directors includes the officers and the following: Harry Sutphen, Lloyd Schafer, Charles Cizek, Richard Voelkert, Norman F. Van Gorp and Joseph Fishelson.

Inquiries concerning the club should be addressed to Grace C. Clark, secretary, c/o Circul-Air Corp., 565 East Milwaukee Avenue, Detroit 2, Mich.

New Kidde Extinguishers

Walter Kidde & Company, Inc., Belleville, N. J., has announced two new pressurized portable fire extinguishers, a 2½-gallon water and a 2½-gallon loaded stream. According to Kidde, their designs stress self-evident operation simply by aiming the discharge nozzle at the fire and pulling the trigger. Approved by Underwriters' Laboratories and Factory Mutual, the water unit rated at 2-A is suitable for use on Class A fires, while the loaded stream extinguisher rated 2-A, 1-B, is for Class A or Class B fires.

Albert Fire Retardant

American Vamag Co., 1615-51st Street, North Bergen, N. J., is now marketing Albert Fireproofing Compound "DS." A development of the Albert Chemical Works, Weisbaden, Germany, the fire retardant is an intumescent or foam-forming coating which has been given a Canadian Underwriters Laboratories flamespread rating of 10. It is said that UL tests of the water-based compound are contemplated in this country.

Appointments and Promotions

William J. Auger has been named sales promotion manager of D. W. Onan & Sons Inc., Minneapolis, Minn.

George Burda, who has headed the combined advertising and sales promotion departments, will continue to direct and administer all of the operations for which he has been responsible. His new title will be advertising manager.

William Doyle, Jr. has joined the sales staff of the Alim Corporation, 11 Park Place, New York 7, N. Y., national sales organization for SAF fire-retardant paints. He was formerly factory representative with the General Fire Extinguisher Corporation.

R. M. Parks has been appointed advertising manager for Industrial Communications and Electronics Products, Bendix Radio Division, Bendix Aviation Corp., Baltimore 4, Md. He was formerly assistant advertising manager of the Avionics Products group.

Bruce C. McCallum has been appointed manager, distributor/dealer sales, Industrial Communications and Electronics Products group. He will head the new dealer sales program for mobile radio products.

G. L. Aldrich has been named administrator, distributor/dealer sales, for the same group. He was formerly a sales engineer in the Bendix Avionics Products group.

Kent J. Worthen has been appointed national sales manager for General Electric two-way radio, with offices at Communication Products headquarters, Lynchburg, Va. He was formerly market development manager.

Robert L. Casselberry, manager of product planning and marketing research for General Electric two-way radio for the past five years, has been named acting manager of the technical products operation of General Electric's Communication Products Department.

Butler Fire & Safety, Inc., 5105 Navigation Boulevard, Houston, Texas, has been appointed a distributor for Pacific Mercury electric plants and flasher warning lights.

Charles E. Underwood, who sold John Bean fire apparatus from 1947 to 1956, is again representing the Fire Fighter Department of John Bean Division, Food Machinery and Chemical Corporation, Lansing, Mich. He will be handling the line in the northern Lower Peninsula and the entire Upper Peninsula of Michigan.

John W. Miller has been appointed sales manager of Plectron Corporation, Overton, Neb., manufacturers of radio tone alerting systems for volunteer firemen. Mr. Miller has been a volunteer with the Lyons, Kans., Fire Department for 12 years, serving as assistant chief and chief. In 1956 he helped organize Rice County Fire District No. 1, and also served as chief.

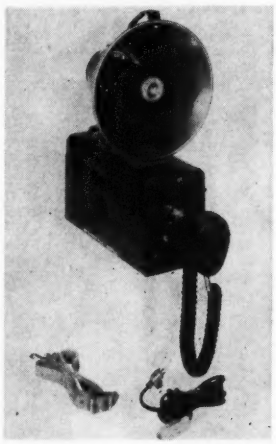
John Bean Celebrates 75th Anniversary

John Bean Division, Food Machinery and Chemical Corporation participated in the parade commemorating Lansing, Mich.'s 100th birthday on May 23. In addition, John Bean celebrated the 75th year for the company. The truck which was driven in the Lansing parade is a combination high-pressure fog and volume pumper recently completed for Haledon, N. J. Fire department.

F-X Paint

Builders Research and Chemical Co., a subsidiary of the St. Regis Corporation, 4990 East Asbury Avenue, Denver 22, Colo., is marketing F-X fire-retardant paint which is claimed to have an Underwriters Laboratories flame-spread rating of 10. The paint is a water-soluble product combining a highly complex silicate with poly-vinyl acetate. This is said to be unique in paint chemistry. The manufacturer states it can be applied by brush or spray, can be water-thinned and is washable.

Raven Transi-Page



A new transistorized portable paging unit, called the "Transi-Page," has been developed by Raven Electronics Manufacturing Co., 2130 West Carroll Avenue, Chicago 12, Ill. The compact 10-pound unit is made for outdoor applications, but can be used where general paging or public address is needed. The unit is also available with a push-button fog horn that it is said can be heard for miles.

Miller-Meteor Expands

A program to expand sales, service and production of Miller-Meteor ambulances is under way, according to an announcement by Leonard Robb, vice president of sales, Miller-Meteor Division of Divco-Wayne Corporation, Bellefontaine, Ohio. Included is an expansion of plant facilities by more than 100,000 square feet. This program is part of a comprehensive plan to give operators better service to meet the public demand for ambulance service.

Association Changes Name

The California Fire Equipment Association, representing 34 fire equipment companies on the West Coast, has changed its official name to the "California Fire Safety Association." President Wayne Rives states the name was changed to more accurately reflect the broader program currently being undertaken by the group to raise the standards in the servicing and equipment fields.

New Portable Generator

Pioneer Gen-E-Motor Corp., 5841 West Dickens Avenue, Chicago 39, Ill., is marketing its Model E-3500-PDV emergency generator which has electric start and a capacity of 3,500 watts, 115/230 volts A.C. The unit is powered by a 6.5-hp four-cycle engine direct-coupled to the generator.

Fire Service Greeting Cards

Hobby Mats, Box 145, Balsam Lake, Wis., has issued a well illustrated, two-color broadside describing its line of Christmas cards, place mats, coasters and napkins which carry a fire service greeting. □□

New IMPERIAL MASTER STREAM FOG NOZZLE

500 GPM
1000 GPM
2500 GPM

SPECIFICATIONS

STYLE	GALLONAGE		BASE THREAD	LENGTH	WEIGHT	PRICE
	U.S.	IMPERIAL				
1145	500	417	2½"	6⅞"	5¼ lbs.	$125
1147	1000	833	2½"	7¾"	7¾ lbs.	$175
1148	2500	2083	Optional	9¾"	11¾ lbs.	$500

AKRON BRASS
FIRE FIGHTING EQUIPMENT

AKRON BRASS MFG. COMPANY, INC.
WOOSTER, OHIO

AKRON MFG. (CANADA), LTD.
AYLMER, ONTARIO

CONSTANT GALLONAGE – INCREASED REACH

Delivers its full capacity, 500 — 1000 — 2500 GPM, in all streams. Greater volume of full rated capacity streams results in fog and straight streams of far greater reach and density.

ENDS PRESSURE "SURGE"

Constant gallonage means no varying nozzle pressure — particularly valuable in aerial ladder pipe work, for it eliminates ladder "sway" and adds greatly to the safety of the operator.

We call it the **BLACK WIDOW**

Why? Because it's black; it's a catchy name you'll remember, and it's fast and deadly when used against the toughest fire.

CLICK POSITIVE STREAM POSITIONING

Holds any position without requiring a locking device. Fingertip control at any pressure. Turns easiest of any nozzle made.

ONE THIRD THE WEIGHT – TWICE THE STRENGTH

No corrosion. Made of Pyrolite metal — the new rocket-age material. Lustrous black surface is so hard that even a file can't scratch it!

ENDS WATER HAMMER

We have eliminated the shut-off to end water hammer that can damage your pump and hose. Control water where control belongs, at the pump.

SPECIFY AKRON FOR BETTER FIRE FIGHTING EQUIPMENT

Get smoke out, get air in

with Multi-Purpose

SUPER VAC

CONTROLLED VENTILATION UNITS

NOT JUST A FAN... but a powerful vacuum-action air screw... Super Vac is amazingly simple in operation, made possible by the efficient design of the **powerful propeller** that is the heart of the unit. This patented propeller produces 100% pulling or blowing power over its entire surface.

Proved method of saving lives while also reducing smoke damage

Fire departments **nation-wide** attest to the speed with which Super Vac provides **controlled ventilation**... so necessary in modern fire fighting. This multi-purpose unit primarily (1) gets rid of smoke and fumes through its powerful vacuum action... or, (2) furnishes a tremendous blast of fresh air into the smoke-congested area, reducing the dangers of combustion and asphyxiation. Although one unit is often sufficient, **complete controlled ventilation** can be more speedily accomplished by using two or more units... one or more units **pulling out the smoke and fumes** while the remaining units **blow in a steady supply of fresh air.**

★ **Highly portable... operates in any position**
★ **Design permits vertical stacking**
★ **Made in 16" and 24" sizes**
★ **AC or DC, regular or explosion-proof motors**
★ **Choice of red or white baked enamel finish**
★ **Running board mounts available**

For complete details and specifications on

... contact your fire equipment dealer

... or write manufacturer

SUPER VACUUM

SUPER VACUUM MANUFACTURING CO., Inc
319½ East Seventeenth Ave., Denver 3, Colorado

The Watch Desk

Fire—Home on the Range

At 4:00 a.m. of a recent Saturday, the vamps of the West Babylon, N. Y., Fire Department were yanked from slumber by their fire siren calling them to duty. Arriving at the Arnold Avenue firehouse they encountered that saddest of all fire spectacles—to a volunteer, at least—their own fire station on fire. Smoke was billowing from the rear of the structure and outside, Fire Chief George Ford was awaiting them—and not standing impatiently by, while doing it!

The chief discovered the fire as he was passing on his way home. He entered the building to find the kitchen in flames and the rest of the structure heavily charged with smoke. He immediately set the sirens wailing (lucky break that the fire hadn't knocked out the electrical system) and then proceeded to get the equipment out of the house. Responding blaze-beaters under his direction, lost no time attacking the fire and confining it to the kitchen, but not before cabinets were burned and furnishings and appliances badly damaged.

John Jebens

Hot Off the Tape

Glen Mattix of Knightstown, Ind., made darn sure that firemen got on the job in a hurry when his restaurant caught fire. He's the fire chief. . . . The Los Angeles City Council in April, urged the legislature to go slowly with a pending bill to establish a metropolitan fire protection authority. After hearing testimony from L. A. City Fire Chief William Miller, the council requested the lawmakers to make a thorough study of all aspects of the proposed county-wide fire department facility. . . . Fire Chief J. T. Billing who only recently took command of the Oceanside, Calif., Fire Department, fought the city's biggest fire on April 29, when the Oceanside Laundry went up to the tune of $200,000. A civilian fire company from Camp Pendelton aided the Oceanside fire fighters, while a unit from Carlsbad located in the city's central fire station. . . . The crew of Ladder 19, Chicago, didn't get their just desserts by any means on April 30. Seems they were just about to sit down for a meal when the alarm rang. Peeved, they returned from the false call, only to become madder when they discovered some miscreant had made off with an angel food cake and two loaves of bread while they were gone. The false alarmist, no doubt? . . . About 2,000 customers fled Harold's Club gambling casino in Reno April 25, when fire busted out. Damage was $50,000, excluding the "customers who failed to return and pay up." . . . Eastern Kentucky's strikebound coal fields were the scene of a $300,000 fire which destroyed a nonunion coal operation on April 25. State police blamed loss of the Ashlo Coal Co.'s tipple, near Combs, upon the

strike situation (*Norris T. Morton*). . . . Fred Smith, 54, of Farmington, Ill., turned on the hot water in his kitchen sink. Boom! When things settled down, including the roof and walls of his two-story frame house, only Smith, a bit of the kitchen and a bowl of eggs remained intact. Firemen theorized gas backed into the sewage system and a basement heater touched off the accumulated fumes. . . . Bernard E. Baine, superintendent of the Presbyterian Home in Lynchburg, Va., tells this one: Because of a number of fires, he cautioned the children against playing with matches or fire. A few days later, a seven-year-old told a teacher in a worried tone that he heard over TV that "the White House was playing with fire." . . . Pupils of the Wiley School, Champaign, Ill., were sent hustling into the rainy outdoors when a fake fire alarm was sounded. They were hustled back indoors to dry out. . . . Blaze-beaters of New York City's Eighth Battalion climbed to new heights, according to reports. Called to a fire atop the uncompleted Union Carbide and Carbon Building, the brothers found no one with a key to the elevators. Battalion Chief Steve J. Murphy ordered the men to load up with six doughnut rolls of hose (about 68 pounds each), two pumps (47 pounds apiece) and two hand extinguishers (22 pounds each) and proceed upward forthwith. Twenty minutes later they had reached the 35th floor. It took less than 10 minutes to snuff out the fire. . . .

Hot Box—15 Blazes

Passing of the steam locomotive may have reduced the number of field and forest fires, but the little old hot box still contributes its share.

A freight train dieseling through Santa Susana Pass, Calif., June 1, developed a hot box which reportedly touched off about 15 fires along the right-of-way, five of them threatening to become major blazes before they were brought under control.

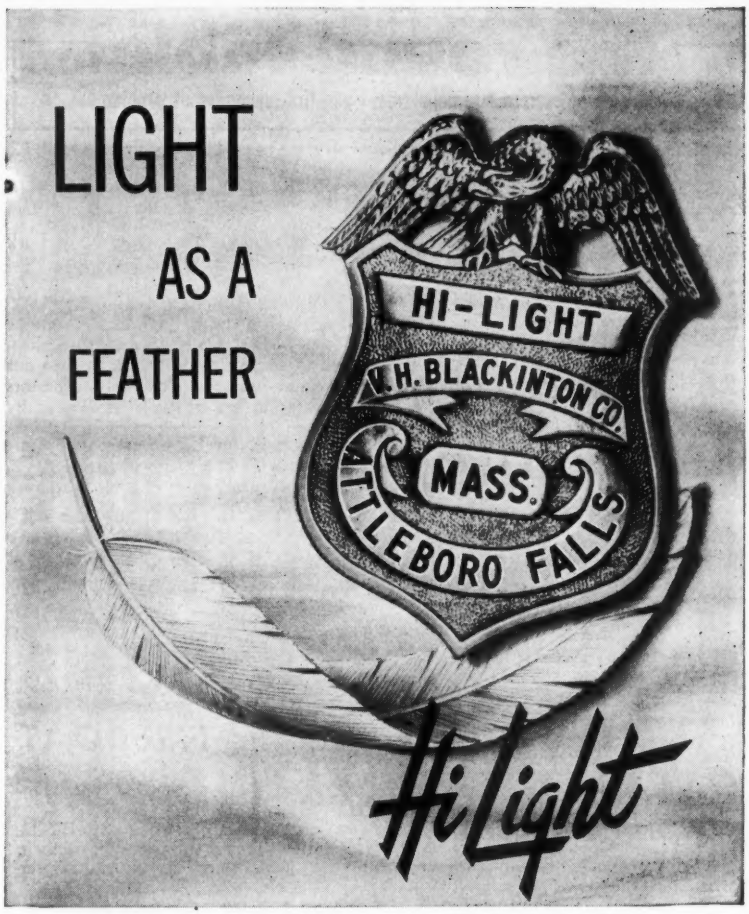
The fires all started on the downgrade of the pass in Ventura County. An estimated 17 fire companies from both Ventura and Los Angeles Counties were called to fight the series of fires on an eight-mile front.

The only building threatened by a blaze was the Pass Club on the pass. Fire department officials were unable to determine just which car had the hot box.

Look Ma—No Tiller!

In a certain Pennsylvania city there's a damage suit pending against the city as proof of the fact that at least one fireman displayed a bit too much "get-up-and-get." The driver of a truck company streaked his long ladder out of the firehouse en route to an alarm of fire, when the rear end swung into two parked automobiles. With the crash, said driver cast a wild look rearwards only to find there was no one aft' at the tiller. The flabbergasted driver saw his brother pilot chasing the ladder truck down the street on foot.

Norris T. Morton



BLACKINTON'S EXCLUSIVE LIGHTWEIGHT BADGE

Designed for today's "Space Age". Hi-Light badges are two-thirds lighter than regular badges. A new concept of lightweight badge construction featuring exclusive Hi-Light metal combined with all the recognized top quality, outstanding appearance and serviceability of famous BLACKINTON badges.

Summer or year-round, more and more people are discovering that Hi-Light is the last word in comfort and good looks.

Available in brilliant polished nickel, long lasting rhodium or rich lustrous gold plate from your equipment supplier or uniform manufacturer.

V. H. BLACKINTON & CO., INC., ATTLEBORO FALLS, MASS.

BLACKINTON

CANADIAN BADGES

Exclusive Canadian Designed Badges NOW AVAILABLE Throughout Canada

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SILVER LINE FIRE EQPT. LTD.
720 Alexander Street
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BLACKINTON . . . YOUR BEST BADGE BUY

the round table

discussion of current fire department and fire management problems

Alerting and Dispatching Fire Companies

THIS IS THE SECOND installment of the Round Table on systems for alerting and dispatching fire companies.

Readers are invited to participate in the discussion which will be continued in the August issue. Address replies to Round Table Editor, FIRE ENGINEERING, 305 East 45th Street, New York 17, N. Y.

The Discussion

John Pavlik, Chief, West Milwaukee, Wis.: A small electric bell is used in our fire station to notify personnel in quarters of an alarm. One bell is located centrally on each of two floors (not in the dormitory), one in the basement boiler room and another mounted outside in the rear of the station to notify personnel in training area. Upon the sound of the bell, all personnel go to their stations on the apparatus; the location, type of alarm and apparatus to respond is then announced over a public address system. In this way, all personnel are alerted as to the location and type of alarm. While en route, the location is again announced over the radio and is acknowledged by all companies.

I favor the use of bells since the bell is rung only to notify personnel of an alarm and no other bells are heard in the building. The telephone bell is heard only in the fire alarm office.

To my knowledge, there is no evidence to show the incidence of heart condition in our department; our bells are not sharp sounding.

Our system was installed in 1956, and we believe no improvements are necessary at the present time.

H. E. Simpson, Chief, Portland, Ore.: Our alarm system is designed to automatically select and "tap out" companies assigned to respond on alarms. Both loud speakers and gongs are used to notify personnel. During "day watch," a watchman is on duty from 7 a.m. to 11 p.m. and companies are first notified of an alarm by amplified beep signals over the public address system, followed by an announcement of the box number, location, and any other pertinent information. This is immediately followed by the sounding of gongs and sending of the box over the punch register.

This method of alarm notification has reduced the incidence of error in transmitting alarm locations to personnel because the correct location is announced in a relatively quiet atmosphere. It also alerts personnel in a less severe way than is occasioned by the sudden, unannounced tap-out gong. However, the tap-out gong is necessary to make sure that personnel outside of quarters are properly notified.

From 11 p.m. to 7 a.m., the "silent system" is in effect and the watchman is allowed to sleep in a bed located in the watchroom. This system is similar in operation to the "day watch" system in that companies due to respond on an alarm are automatically selected and "tapped out." The main difference is that they are tapped out first and this is followed by the public address system giving the necessary information. Responding companies only are awakened.

We have no evidence available to show that heart ailments of our members are caused by sudden, sharp warning devices, but on the advice of the medical profession, heart ailments are classified in our pension system as occupational diseases.

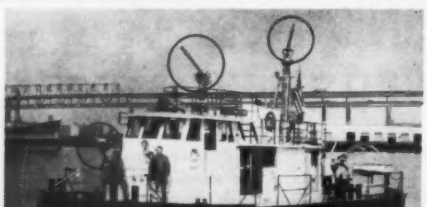
Throughout the years, we have heard many objections to the use of harsh warning devices, such as gongs or bells to awaken personnel. Several months ago, in an attempt to find an answer and also to improve our alerting system, our alarm superintendent installed switches in several of our companies, which allow a change from gongs to loudspeakers, using

THEY'RE ALL INVINCIBLE MONITORS AND DECK GUNS

on the NEW Portland, Maine FIREBOAT "CITY OF PORTLAND"

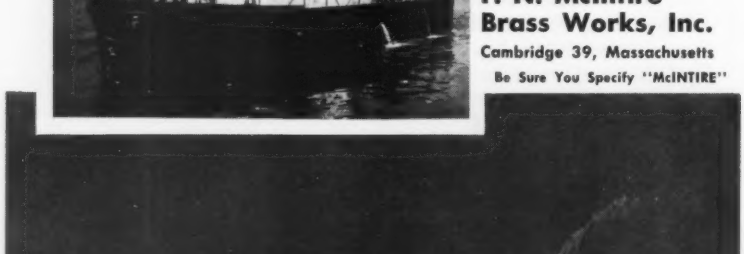
CHIEF CARL P. JOHNSON SAYS: "We again chose 'INVINCIBLE' MONITOR NOZZLES made by McIntire Brass Works for our new fireboat because of their proven ruggedness, performance and ability to deliver large amounts of water when and where we need it."

PERFORMANCE IS WHAT COUNTS



THAT'S WHY MOST FIREBOATS ARE EQUIPPED WITH "INVINCIBLE" GUNS & NOZZLES

F. N. McIntire Brass Works, Inc.
Cambridge 39, Massachusetts
Be Sure You Specify "McINTIRE"



THIS MONTH'S QUESTIONS

What method is used to notify personnel in quarters of an alarm?

Do you favor the use of bells in preference to chimes, gongs, or horns?

Do you believe the speed of response is affected by the type of alarm device used for alerting firemen?

Is there any evidence available in your department to show a relationship between sudden, sharp warning devices and the incidence of heart conditions? If so, will you briefly outline the nature of this?

If you were to revamp your present alerting system, what changes in equipment and procedures would you make?

an amplified beep note repeated three times. Both methods have been found to be equally effective in alerting personnel, but after several months trial, opinions are divided as to which method is preferable.

Thomas Maloney, Chief, Jersey City, N. J.: In our department, the lights go on in all quarters. The loud speaker announces stand-by for signal station, and then a small-size bell taps out the station number. Also, a tape is punched recording the station number. All companies wait for one round of the signal before leaving quarters.

We prefer bells; other devices seem to distract from their tones.

We respond quicker under our method than they did years ago, when the first warning was the large gong going off.

There is no evidence in our department that I know of which would indicate that there is a relationship between sharp warning devices and the incidence of heart conditions, nor have I heard of it from our medical doctor.

The system we now have takes care of our department very well.

Donald S. Charles, Chief, Charlotte, N. C.: Our alarm system is arranged to use selective transmission of alarms. That is, the transmitting of alarms only to the station or stations from which apparatus is to respond. Prior to transmitting an alarm, the stations are alerted by sounding the bell one time.

We do not believe speed of response is affected by the type of alarm used.

While no direct evidence is available, it is felt that sudden, sharp warning devices are a contributing factor to the inci-

THE MINUTE THAT WAS FOREVER FOR THE FACE AT THE WINDOW

The ladderman had a brief glimpse of a terror-stricken face at the window. Just as he reached it, the floor collapsed and the face disappeared.

But it wasn't that final minute which decided the fate of the face in the window—it was one of the seven minutes it took to pull the hose off the pumper and get water on the fire.

Bi-Lateral flips off the pumper faster because it's more flexible, and because it folds flatter. Bi-Lateral construction allows *more* hose on each pumper—enabling you to cover more fire, faster. Save time—save lives—with Bi-Lateral.

Bi-Lateral construction saves you *more* than precious minutes, because the same flat-folding feature is responsible for the protection of the lining. This means you replace it far less often—*you save precious dollars, too!* Bi-Lateral costs less per foot per year.

Bi-Lateral **FIRE HOSE COMPANY**

20 N. Wacker Drive · Chicago 6, Illinois

"You Mean You had

INDIAN

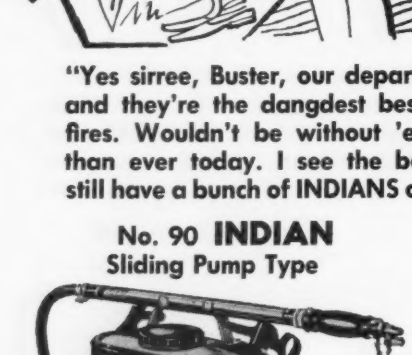
FIRE PUMPS

Way Back

Then Grandpa?"

"Yes sirree, Buster, our department had them in 1925 and they're the dangdest best outfits made for small fires. Wouldn't be without 'em. Guess they're better than ever today. I see the boys at the station house still have a bunch of INDIANS on hand."

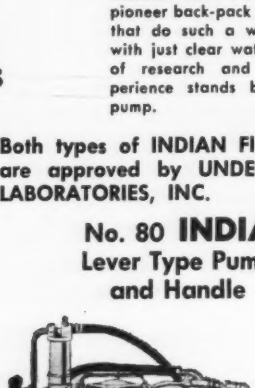
No. 90 INDIAN
Sliding Pump Type



Old timers know and swear by **INDIAN FIRE PUMPS** — the pioneer back-pack extinguishers that do such a wonderful job with just clear water. 30 years of research and design experience stands behind every pump.

Both types of INDIAN FIRE PUMPS are approved by UNDERWRITERS' LABORATORIES, INC.

No. 80 INDIAN
Lever Type Pump and Handle



Fire fighting authorities who have experimented with a "WET WATER" powder mixed with the water in an **INDIAN FIRE PUMP** tank report it does an excellent job.

"Nothing Like an INDIAN"

"We have 6 **INDIAN FIRE PUMPS** and have used them for 8 years. They are still just like new and we like them very much. We use them for everything including grass, house, barn, roof, rubbish and many other fires. There is nothing else like them."

Earl L. Koch, Asst. Chief
Ann Arbor, Mich. Fire Dept.

Write for New Catalog

D. B. SMITH & CO.

"For Over 70 Years the Leaders"
406 MAIN ST., UTICA 2, N. Y.

PACIFIC COAST BRANCHES

Hercules Equipment & Rubber Co., Inc., San Francisco 7, and San Jose, Cal.

Fred E. Barnett Co., Portland, Ore.

Fred E. Barnett Co., Klamath Falls, Ore.

Halprin Supply Co., Los Angeles 15, Cal.

Mill & Mine Supply, Inc., Seattle, Wash.

L. M. Curtis & Sons, Salt Lake City, Utah

CANADIAN AGENTS

Flack Bros. Limited, Vancouver, B.C.

C. E. Hickey & Sons, Ltd., Hamilton

dence of heart conditions. Depending on individual characteristics, there seems to be evident at times, a tension resulting from an anticipation of an alarm. In all cases, though, there is the cumulative effect of tension resulting from the frequent, sudden change from a relaxed or "at rest" condition, to a fast or "high speed" action when an alarm is sounded, with a consequent increase in the blood pressure level, which together with the tension must have some detrimental action on the circulatory system.

No change in our alerting system is contemplated.

Walter L. Mayer, Assistant Chief, St. Paul, Minn.: When a telephone or box alarm is received by the fire alarm dispatchers, they immediately alert the stations involved by sounding two rings on their fire department telephones. These watchmen, in turn, sound two or more rings on the large gong in the station, bringing the men to the apparatus. While this move is in process, the alarm office sounds two rings over the entire city's fire department primary circuits, gives out the location of the alarm of fire and names the companies that will respond. The elapsed time to complete the entire process is about one minute. If a box alarm is given out, the number of the box is then sent out over the entire city's fire department primary system and becomes registered on the station tape for verifying and recording purposes.

Due to the fact that we have had a very fast response to the alarms received and given out, we favor the use of bells and gongs.

Again, due to the fact that our response is very fast, we feel that the type of alerting or warning used has a definite effect on the speed of response.

The question of whether warning devices affect the heart, should be answered by someone qualified in medicine or related subjects.

We feel our present systems of receiving and transmitting alarms are very adequate and no changes are contemplated.

B. P. Lemieux, Chief, Calgary, Alta., Can.: Our department uses taps on gong or horn. The alarm device must be loud enough to warn men throughout the station or men who are outside.

We do not believe speed of response is affected by the type of alarm device used.

In our department, there is no evidence available to indicate a relationship between sharp warning devices and the incidence of heart conditions.

L. L. Geisler, Chief, Johnson City, Tenn.: A tone signal from the radio speaker is used in the daytime. At night when the firemen are sleeping, lights go on all over the house on receipt of an alarm and a gong is sounded. This system has been working out very well.

We are of the opinion that the speed of response is affected by the type of alarm device used for alerting personnel.

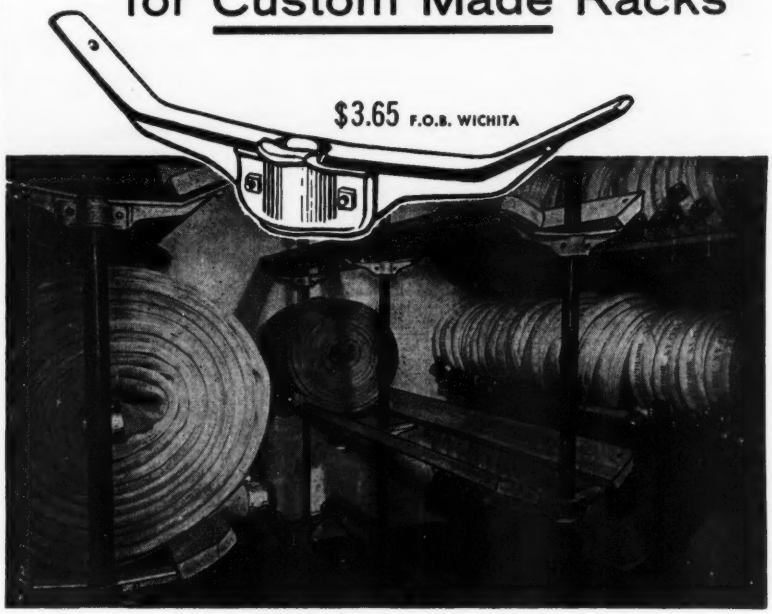
In our department, there is no evidence to show a relationship between sudden, sharp warning devices and the incidence of heart conditions. □□

What's Burning

THE FOLLOWING LIST includes fires of $10,000 and over in the United States and Canada for the period from May 17 to June 22nd.

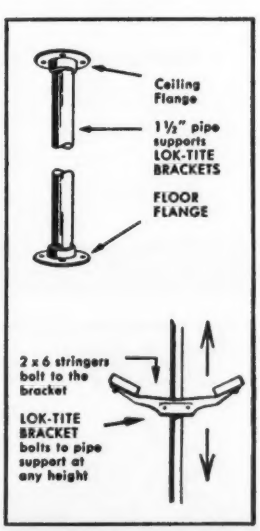
Mobile, Ala.—Dwelling of Alfred B. Harrell destroyed. Possible burglar.
Kodiak Alaska—Naval Station Commissary warehouse destroyed.
Little Rock, Ark.—Missouri Pacific Lines Shops and freight damaged.
McKittrick, Calif.—Honolulu Oil Co. butane gas plant destroyed.
San Francisco, Calif.—Jefferson Elementary School destroyed. Fire set by 12-year-old student.
San Francisco, Calif.—Sterling Furniture Store damaged. Possible arson.
San Francisco, Calif.—Warehouse at Pier 14 extensively damaged. Careless smoking.
San Mateo, Calif.—St. Matthews parochial elementary school damaged.
Santa Fe Springs, Calif.—Pilot California Chemical Co. damaged. Explosion.
Bridgeport, Conn.—Homer C. Godfrey Building Materials Co. warehouse destroyed.
Port Chester, Conn.—A & P food market on King Street destroyed.
Warehouse Point, Conn.—Tobacco storage barn destroyed.
Bridgeville, Del.—Four buildings on Edgar C. O'Day farm destroyed.
Wilmington, Del.—National Supply Co. plant destroyed.
Jacksonville, Fla.—Borden's dairy plant damaged.
Jacksonville, Fla.—Navy Exchange Building at Air Training Center, housing snack bar, shopping center and storage area, considerably damaged.
Atlanta, Ga.—Zep Mfg. Co. chemical plant damaged heavily.
Idaho Falls, Idaho—Mel Brown Pump Co. destroyed.
Idaho Falls, Idaho—Idaho Livestock Auction Co. destroyed. Arson reported.
Idaho Falls, Idaho—Max Kerr Lumber Co. destroyed.
Chicago, Ill.—Apartment dwelling at 2301-2325 West Madison Street, damaged.
East St. Louis, Ill.—Cornick Oil Co. service station destroyed. Arson.
East St. Louis, Ill.—Wrecking yard near eastern approach to MacArthur Bridge damaged.
Freeburg, Ill.—Donley Calendar Bindery damaged.
Mulberry Grove, Ill.—Six buildings housing frozen food locker of George Schrumph, two groceries, one vacant grocery, Masonic Hall, barber shop, real estate office and telephone exchange destroyed or damaged.
Pittsfield, Ill.—A grain elevator on Dave Werbel's farm destroyed.
Rochester, Ill.—Rochester Grain Co. elevator building and two railroad box cars destroyed.
Anderson, Ind.—John Kelley Furniture Co. damaged.
Gary, Ind.—Wholesale Grocery Co. warehouse damaged.
Indianapolis, Ind.—Indianapolis School System warehouse damaged. Possible arson.
Terre Haute, Ind.—Deming Building, housing Jane Hall, women's wear, damaged.
Wolcottville, Ind.—Silver Star Fiberglass Products Co., branch of Star Tank & Boat Corp., damaged.
Clarinda, Iowa—Butternut Baking Co. storage barn and office damaged.
Greeley, Iowa—Greeley Mill and Elevator destroyed.
Sioux City, Iowa—O. F. Steffen Body Co. factory building destroyed.
Catlettsburg, Ky.—No. 1 refinery of Ashland Oil and Refinery Co. damaged.
Georgetown, Ky.—Bevins Motor Co. damaged. Spark ignited leaking gasoline.
Maysville, Ky.—Maysville Country Club building damaged.
Waterville, Me.—State Furniture Co. warehouse destroyed.
Baltimore, Md.—Kidd & Buckingham Lumber Co. damaged.
Baltimore, Md.—The Martin Co.'s Plant No. 2

Hose **BRACKETS**
for Custom Made Racks



Convert Waste Space To Valuable Storage!

Lok-Tite fire hose brackets provide storage racks in odd dimension areas where ready-made storage will not fit. Encourage good housekeeping practices . . . assure easy hose inspection and correct ventilation by building sturdy storage with Lok-Tite brackets approved by hose manufacturers and fire departments everywhere.


Ceiling Flange
1½" pipe supports LOK-TITE BRACKETS
FLOOR FLANGE
2 x 6 stringers bolt to the bracket
LOK-TITE BRACKET bolts to pipe support at any height

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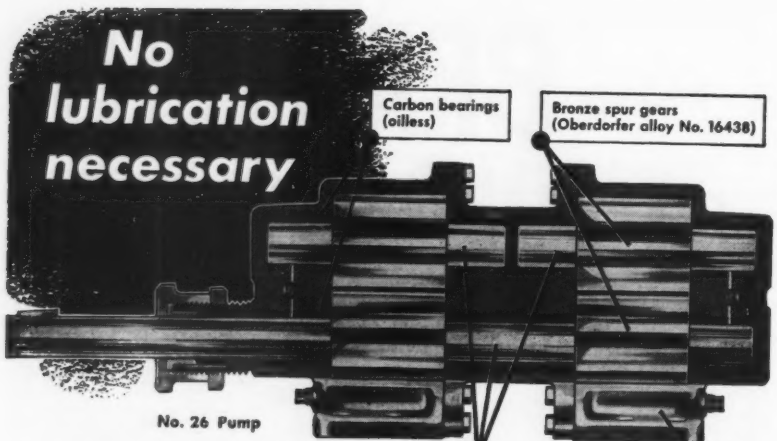
157 N. WACO • WICHITA, KANSAS

W. B. MANUFACTURING CO. Dept. FE
157 North Waco • Wichita, Kansas
Please send me ____ brackets @ $3.65.
NAME_____
STREET_____
CITY_____ STATE_____

- Simple to install
- Easy to adjust
- Big load support


No lubrication necessary
Carbon bearings (oilless)
Bronze spur gears (Oberdorfer alloy No. 16438)
No. 26 Pump
Piston-finished stainless steel shafts
Bronze housing (Oberdorfer alloy No. 741)

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OBERDORFER

BRONZE BOOSTER PUMPS

These booster pumps with oilless bearings will last 3 to 5 times longer than the old style equipped with plain bronze bearings. As a result of closer machining tolerances, over 20 feet of suction lift may be depended on.

The No. 13 and No. 26 Oberdorfer Pumps are more fool-proof than they have ever been. When you get to a fire you have something you can count on. It isn't necessary to wear pumps out checking them periodically to see if they will work. These pumps are metering pumps in principle and therefore must produce the same volume for every revolution of the drive shaft.

PERFORMANCE DATA—No. 26 and No. 13 PUMPS

Pump No.	Pump Shaft R.P.M.	Pounds Pressure	Hose Length and Size	Dry Suction Lift in Feet	Vol. in Gal. Per Minute
26	1600	120	500'—1½"	20'	150
13	1600	120	500'—1½"	20'	75

LIST PRICES — No. 26 — $249.50 No. 13 — $122.50

Slightly higher west of Rockies

FIRE PUMP DIVISION, Oberdorfer Foundries, Inc., Syracuse, N. Y.

"SIERRA" Fire Dept. Tools

CONTACT HALPRIN FOR THE FINEST

Spanners, Hose Straps

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Quality at Lowest Price

SIERRA

SEND FOR COMPLETE CATALOG M-300

HALPRIN SUPPLY CO.

1355 South Flower St., Los Angeles 15, Calif.

paint hanger considerably damaged. Explosion while cleaning plane.

Baltimore, Md.—Public School No. 182 heavily damaged. Suspicious origin.

Hurlock, Md.—Athol farm buildings destroyed. Exploding grain combine.

Danvers, Mass.—Vi-Cliff Restaurant destroyed.

East Boston, Mass.—Business-apartment building housing lounge and ceramic shop, considerably damaged.

Lowell, Mass.—Building housing Kidder-Peabody Co., Maloof's Greeting Card and Photo Shop, Alice H. Smith's Art and Needle Work and Allen's Cut Rate considerably damaged.

North Pembroke, Mass.—Gilbert West Box Mfg. Co. storage shed destroyed.

Wakefield, Mass.—Sunlite Bowladrome and adjoining dwelling damaged.

Woburn, Mass.—Winchester Crushed Stone Co. damaged.

Alpena, Mich.—Owl Cafe destroyed. Explosion.

Ann Arbor, Mich.—Electric Service Co. damaged.

Belding, Mich.—Chickering Vegetable Equipment Co. plant destroyed.

Calumet, Mich.—Calumet Village Garage destroyed.

Charlotte, Mich.—Moorman Feed warehouse destroyed.

Frankfort, Mich.—Park Hotel destroyed.

Hancock, Mich.—Kerredge Theatre destroyed; adjoining Hotel Scott, housing radio station KMPL, damaged.

Iron River, Mich.—Sherwood iron mine considerably damaged. Cave-in.

Kalamazoo, Mich.—Five buildings on Brook farm, formerly operated by Kalamazoo State Hospital, destroyed.

Lake Odessa, Mich.—Barn on Theodore Armstrong farm destroyed.

Mio, Mich.—Schwark Buick Sales & Service Co. building destroyed.

Olivet, Mich.—Administrative building on Mt. Olivet College campus destroyed.

Brainerd, Minn.—Breezy Point Lodge destroyed.

Atlantic City, N. J.—Beachcomber Bar and Steak House destroyed.

Bayonne, N. J.—Bayonne Public Library building, housing museum, Welfare Department offices and Boy Scouts, destroyed.

Cedar Grove, N. J.—Pompton Ave. School destroyed.

Clifton, N. J.—Hoffman La Roche Chemical Works extensively damaged. Explosion.

Englishtown, N. J.—Eleven-building auction destroyed.

Hammonton, N. J.—Juliano Lumber and Millwork Co. destroyed.

Lodi, N. J.—Frank's Market badly damaged.

Paterson, N. J.—Consolidated Piece Dye Works building destroyed.

Paterson, N. J.—Edward Koehler Roofing and Sheet Metal Co. destroyed. Workers cleaning kettle with gas-fired torch.

Paterson, N. J.—Sanitary Soap Co. damaged.

Perth Amboy, N. J.—Fox the Furrier, Sylvia's Shoe Store, Brass Rail Tavern and Pollino's Barber Shop destroyed.

Plainfield, N. J.—Recreation Bowling Alley destroyed. Explosion.

East Durham, N. Y.—Hotel East Durham damaged extensively.

East Meadow, L. I., N. Y.—Associated Supermarket destroyed.

Fire Island, L. I., N. Y.—The Pines Hotel destroyed.

Peekskill, N. Y.—Four business-apartment buildings destroyed.

Archdale, N. C.—Paint Products Co. destroyed. Spark from paint mixer.

Durham, N. C.—Morgan Motors Co., Inc., destroyed.

Fayetteville, N. C.—Sycamore Dairy heavily damaged.

Morgantown, N. C.—Drexel Furniture Co. No. 3 plant damaged.

Statesville, N. C.—Gilliam Furniture Co. severely damaged. Lightning.

Delphos, Ohio—Lincoln Inn destroyed.

Stony Ridge, Ohio—Holiday Inn Motel and Toledo-Detroit Expressway, housing restaurant and bar of Buddies Food Service, Inc., damaged.

Toledo, Ohio—Continental Grain Co. damaged.

Toledo, Ohio—Toledo Heat Treating Co. damaged.

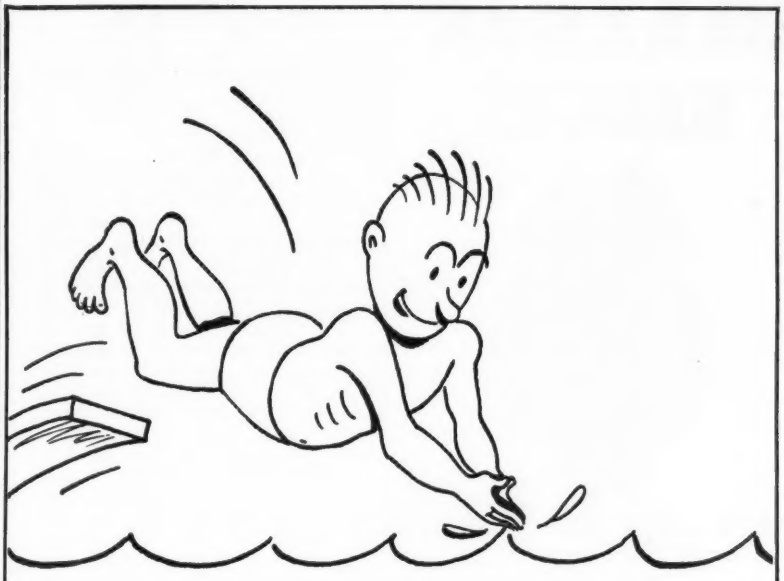
West Richfield, Ohio—Garage of Martin Pedigo destroyed; Oviatt's Antique Shop damaged. Gasoline tank explosion.

Echo, Ore.—Echo Department Store print shop destroyed. Explosion.

Gresham, Ore.—Splawn Bulb farm destroyed.
Klamath Falls, Ore.—Payless Drug Store and three adjoining businesses destroyed.
Mehema, Ore.—Stout Creek Lumber Co. destroyed.
Pondora, Ore.—Valsetz Lumber Co. and 15 dwellings destroyed.
Sweet Home, Ore.—Oregon Plywood Plant destroyed.
Tillamook, Ore.—Bushner Lumber Co. destroyed.
Willamina, Ore.—Green Mountain Lumber Co. damaged.
Easton, Pa.—Garage and furniture warehouse destroyed. Explosion.
Philadelphia, Pa.—Karl's Bargainland warehouse heavily damaged.
Philadelphia, Pa.—Technical Packaging Products Co. building heavily damaged.
Pottsville, Pa.—Rapp Motors agency building damaged.
Darlington, S. C.—Syracuse Community Store and adjoining garage destroyed. Two-car collision in front of store.
Williston, S. C.—Schumpert Lumber Co. buildings destroyed.
Knoxville, Tenn.—Solway auto parts warehouse destroyed.
Tullahoma, Tenn.—Second floor of Smotherman-Womack Co., wholesale grocery, destroyed.
Alvin, Tex.—Abandoned hotel, Green's Cafe, hardware store and several other buildings detroyed or damaged.
Dallas, Tex.—Pillowtex Mfg. Corp. damaged.
Honey Grove, Tex.—Grove Theater destroyed; Piggly Wiggly store damaged.
Stamford, Vt.—Century-old Summer homestead destroyed. Oil burner explosion.
Neah Bay, Wash.—Hodgson Ice Plant destroyed.
Oroville, Wash.—Fruit packing warehouse destroyed.
Seattle, Wash.—El Rancho Cafe road house destroyed.
South Bend, Wash.—American Hardboard Supply Co. damaged. Short circuit.
Sunnyside, Wash.—Hollingsworth Granary destroyed.
Vancouver, Wash.—Payless Drug Store damaged. Explosion.
Washougla, Wash.—Dairy barns of Gaylord Shively destroyed.
Yakima, Wash.—Cresci Second Hand Store destroyed.
Yakima, Wash.—Valley Utility Commercial Storage destroyed. Faulty electric motor.
Nitro, W. Va.—Ohio Apex Division of Food Machinery Corp. badly damaged. Pressurized still exploded.
Richwood, W. Va.—Tioga Coal Corp. preparation and cleaning plant damaged.
Wayne, W. Va.—Wayne Ford Sales & Service Co. destroyed.
Lanark, Ont.—More than 40 of town's 90 buildings, including Town Hall, telephone exchange, hardware and paint stores, lumber yard, other stores and dwellings destroyed or damaged. Wood shavings from sash and door shop ignited.
Napanee, Ont.—Morven United Church destroyed.
Toronto, Ont.—Dominion Stores Ltd., grocery warehouse, damaged.
Windsor, Ont.—Building housing Star Restaurant and clubrooms and several nearby stores, damaged.
Hull, Que.—E. B. Eddy paper mill damaged.

Firemen Hold Religious Services at Air Base

Chaplain (Major) Norris T. Morton, 801st Air Division, Lockbourne Air Force Base, Ohio, recently inaugurated Sunday devotional services for the Base firemen. The services, conducted at the Crash Rescue Fire Station, are exclusively for the fire fighters. Men stationed at fire headquarters drive to the crash house in a pumper in order to be ready to respond to an alarm. The new venture in religious devotion was begun at the invitation of Fire Chief Larry Donovan.



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KNOWN TO SCIENCE?

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EMERSON Resuscitators

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COMPLETELY NEW BADGES

FOR NEW ORGANIZATIONS

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BRAXMAR BADGES

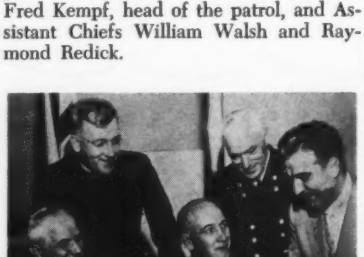
Among the Buffs

By Paul C. Ditzel

THE CHICAGO FIRE Insurance Patrols are now a memory, but the valiant officers and men who gave so freely of themselves will not soon forget the testimonial given them by members of the Chicago Fire Fans Association.

The fans were hosts to patrol officers and men at a corned beef and cabbage dinner at Patrol 5's quarters on April 14. Also attending were several top officers of the Chicago Fire Department including Commissioner Bob Quinn who was riding sidesaddle in that same battalion's buggy when I was a Chicago newshawk.

Among the patrol officers on hand, reports Bill Ryan of the CFFA, were Chief Fred Kempf, head of the patrol, and Assistant Chiefs William Walsh and Raymond Redick.



Hy Levine, Chicago Fire Fans Association president serves Chicago Fire Commissioner Robert Quinn, as Patrol Chief Fred Kempf (seated), Father Joseph McCarthy and Assistant Chief Raymond Redick look on

Said Commissioner Quinn: "The Fire Department in no way had anything to do with disbanding of the patrols. Nor was it initiated by the mayor of Chicago. My experience with the patrol since 1928 has been very pleasant and cordial. You always could see these fellows in red helmets coming down the street and they were a welcome sight. I'm sorry to see this fine group go."

I'm sure Bob is. As a former Chicago newsman, I can remember several occasions where patrolmen died while fighting Chicago's fires side by side with Chicago beaus. They were always excellent hands at fires.

The CFFA affair was held simultaneously with their regular monthly meeting with President Hy Levine presiding. The meeting was interrupted six times by alarms for Patrol 5 which would seem to indicate that the need for the patrol's services is still a vital one.

Among the CFFA members, Joe Deichman, who also happens to be Captain of Squad 4, had trouble filling the role of hero the day before the banquet when the squad was sent to a North Side address.

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GET **HIGH** RETURNS with less effort at a nominal cost to you!

Handford Brown

COIN CARDS

The tested and proven way to raise funds. Used successfully by fire departments all over the nation. Holds up to $5.00 in quarters or $3.00 in dimes. Donations can now be given on the popular budget system.

WRITE OR PHONE FOR SAMPLES, DETAILS REGARDING DISTRIBUTION AND PRICES TODAY.

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WINDSOR 4-0454

Three-year-old Jeffry Johnson telephoned his grandmother when his mother fell down the basement stairs and was unable to move. Jeffry was in command of the situation until Captain Deichman and his stalwarts breezed up to the Johnson home. The boy looked through the bolted back door and said:

"We don't need any firemen today."

It turned out that the Johnsons did. Joe and the heroes of Squad 4 jimmied the door, rescued Jeffry's mother and helped to pack her off to the hospital.

Also in the mails comes a note from Secretary Louis Engelman, 53 Lee Avenue, Yonkers, N. Y., who reports there's an active group of auxiliary firemen there who turn out to all multiple alarms and aid the paid department.

"We have responded to several second and third alarms in 1958 and 1959 giving valuable assistance in salvage and overhaul."

Charles L. Roblee, fire training instructor at Purdue University's Safety Institute, West Lafayette, Ind., sends a unique announcement of the birth of his third child, a boy. The announcement describes in terms befitting a fire engine, that Richard Leonard Roblee with a loud and clear "warning device" made his presence admirably known on May 21. Charles formerly was with the Cook County Inspection Bureau, Chicago.

Add to the ever-growing list of buffs who leave the bride waiting when the alarm bells ring:

In Portland, Conn., spectators at a $110,000 boat yard blaze noticed two volunteer firemen dressed somewhat differently from the other vamps and buffs. Terrence Quigley and his brother, Jim, had just attended a wedding breakfast and were heading for a reception when the alarm clanged.

Terrence was the bridegroom; James the best man.

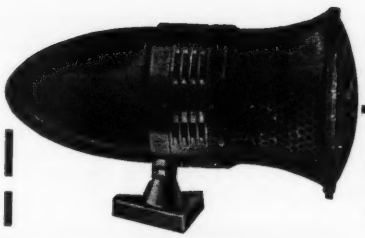
Among San Francisco's friendly Phoenicians, Ra "Doc" Levin has stepped down as president of the society after a two-year term. He edits the club's newspaper, too, wherein I picked up this item. He doesn't say who succeeded him. But I guess that's Show Biz.

In Baltimore, the Box 414 Association honored retired Chief Michael Lotz with a farewell dinner. "Chief Lotz has always been a steadfast friend of 414 and we are truly sorry to lose him," says Ray Wheatley, editor of the club's *General Alarm*.

Earlier, the club journeyed to Newark and Jersey City where they were the guests of fire fan groups and departments: The Bell & Siren Club, the Newark Fire Department, the Gong Club of Jersey City, the Jersey City Fire Department, and the mayor and city commissioners of Jersey City.

The 414'ers were taken aback not long ago when Captain Heise of Engine 19 was saved by fellow firemen when he fell through the floor and into the basement at a bad fire. The firemen quickly turned a big line near him and kept the fire away until rescue was completed.

The papers reported: "Fire Fighters Save Captain From Grave Peril. . . . See Picture on Back Page." When the buffs turned to the back page they saw but one



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Siren sounds a penetrating warning, red light automatically flashes authority. Traffic opens instantly, day or night. FREE ROLLING feature.

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- RUGGED
- RELIABLE

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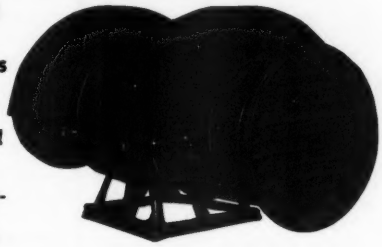
Quick acceleration, power-plus . . . Model M really gets the boys out in a hurry! Used by championship companies from coast to coast. A dependable, heavy-duty siren built of the finest materials throughout.



Complete line of siren Equipment • *Bulletin on Request*

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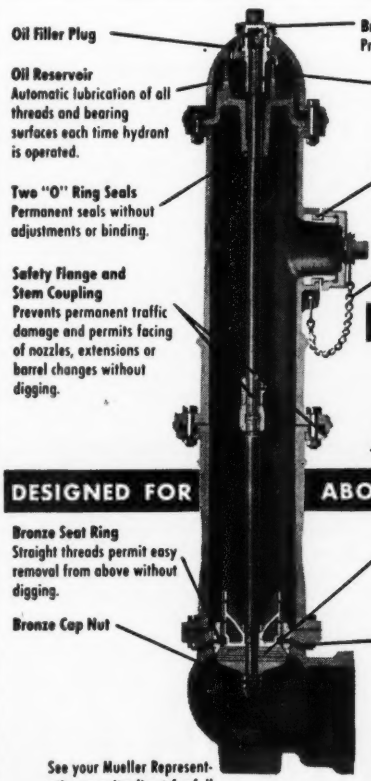
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Oil Reservoir
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Permanent seals without adjustments or binding.
Safety Flange and Stem Coupling
Prevents permanent traffic damage and permits facing of nozzles, extensions or barrel changes without digging.
Bronze Seat Ring
Straight threads permit easy removal from above without digging.
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Bronze Weather Cap
Prevents ice-locking of operating nut.
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Closes with the water pressure—and stays closed. Permits repair or modification without water shut-off!
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Automatically force-flushed each time hydrant is opened or closed.

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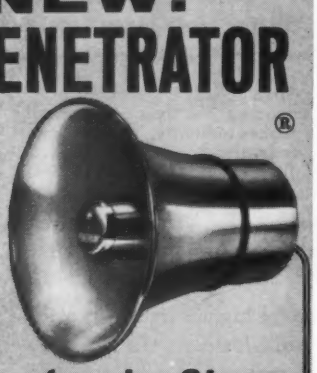

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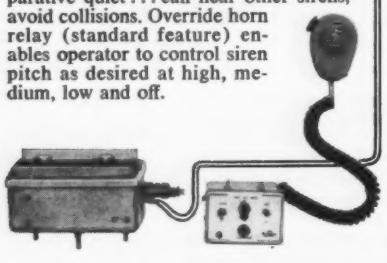
Penetrator's powerful 50-watt electronic siren projects sound or signal up to 1 mile, to arouse, forewarn, protect! Because 90% of sound is beamed ahead of emergency vehicle, driver sits in comparative quiet . . . can hear other sirens, avoid collisions. Override horn relay (standard feature) enables operator to control siren pitch as desired at high, medium, low and off.



On scene, Penetrator serves as an authoritative high fidelity public address system for controlling crowds, riots, parades, directing fire fighting, rescues, civil defense. Penetrator also ties into vehicle's 2-way radio to amplify incoming messages.

Compact control box—only 4 15/16" wide, 3 3/16" high, weight 12 oz.—is easily mounted anywhere handy on dashboard. Air-cooled, 9-transistor amplifier fits concealed between radiator and grill or below dashboard. Penetrator operates on extremely low battery drain of 4 amps. All components are electronic, vibration-free, weatherproof . . . guaranteed 90 days!

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picture captioned: "Sex is like dynamite." And falling through the floor isn't such a dud, either, says Captain Heise.

Until I clear the cobwebs away from this machine again next month, please keep the news, anecdotes and reports coming to me at Box 8731, Crenshaw Station, Los Angeles 8, Calif. □□

Persons in the News

W. J. Cawker Retires; Line Heads Topeka Department

Chief William J. Cawker, a veteran of 56 years service with the Topeka, Kans., Fire Department, resigned on May 1. He joined the department in 1903 at the age of 21 and became chief in 1933.

Chief Cawker served as president of the International Association of Fire Chiefs in 1949–50 and is a past president of the Missouri Valley Association of Fire Chiefs and the Kansas State Fire Chiefs Association.

Bert E. Line has been named chief to succeed Cawker. He has been first assistant chief since May 21, 1952.

The new chief entered the department in 1933. He was made the department's first drillmaster and head of the training program on August 1, 1957.

Chief Line is a member of the International Association of Fire Chiefs, the NFPA Exploratory Committee on Water Fog and the Kansas State Fire School Advisory Board.

NBFU Re-elects Officers

Harry W. Miller, general U. S. attorney of the Commercial Union Group of Insurance Companies, was re-elected president of the National Board of Fire Underwriters at its 93rd annual meeting in New York at the Hotel Biltmore, May 21. John A. North, president of Phoenix of Hartford Insurance Companies, was elected vice president, a post he had been holding since April 30 under an interim appointment. Lester S. Harvey, president and director of the New Hampshire Fire Insurance Co., and Charles J. Jervey, vice president of the Travelers Indemnity Co., were re-elected secretary and treasurer respectively.

Thomas Re-Elected by NFPA

Henry G. Thomas, retired fire chief of Hartford, Conn., and now with the National Board of Fire Underwriters, was re-elected president of the National Fire Protection Association at the recent Atlantic City conference. Other officers re-elected include: First vice president, Loren S. Bush, chief engineer, Board of Fire Underwriters of the Pacific; second vice president, J. Sharp Queener, E. I. du Pont de Nemours Co.; and secretary-treasurer, Hovey T. Freeman, Manufacturers Mutual Fire Insurance Co. T. Seddon Duke, president of the Star Sprinkler Corp., was re-elected chairman of the board of directors.

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"The Science and Technique of
FIRE
PREVENTION, PROTECTION and EXTINGUISHMENT"

"PAY-by-the-LESSON" PLAN!
NO BURDENSOME TIME PAYMENTS
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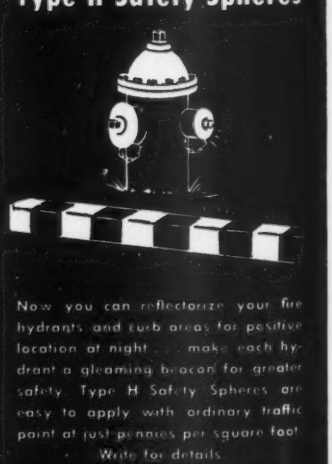

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Daly New Chief at Detroit

Battalion Chief Lawrence J. Daly became chief of the Detroit Fire Department July 1. He entered the department in July 1926. Chief Daly replaces Joseph H. Adler who became chief last December 31 and who retired because of age regulations.

The competitive tests for the top post in the Detroit Fire Department were limited to 16 battalion chiefs who could serve at least three years before reaching the mandatory retirement age of 60. "Under the old system (on a seniority basis), we would have seven chiefs in the next 30 months," said Commissioner Paxton Mendelssohn.

Duggan Heads S. F. P. E.

James J. Duggan, director of safety and fire protection, Union Carbide Chemicals Co., Charleston, W. Va. was elected president of the Society of Fire Protection Engineers at the recent Atlantic City annual meeting of the organization. Other officers elected were: First vice president, Warren J. Baker, Insurance Company of North America; second vice president, John N. Pryce, Canadian Underwriters' Assn.; Secretary-treasurer, Robert S. Moulton, National Fire Protection Association. □□

Obituaries

Chief J. S. Doyle

James S. Doyle, 80, retired chief of the Auburn, N. Y., Fire Department, died May 31 at Auburn Memorial Hospital after a long illness. Chief Doyle retired in 1950 after 42 years of service. He was appointed a callman in 1909 and became a permanent fireman in 1912. He was promoted to lieutenant in 1920, captain in 1921 and assistant chief in 1940. He became chief in 1944.

Chief Edward Connors

Edward Connors, 67, retired New York City fire chief, died June 2 after a long illness. Chief Connors was appointed a fireman in 1918, promoted to lieutenant in 1927, captain in 1928 and battalion chief in 1934. He was promoted to deputy chief in 1937 and assistant chief in 1951. He was named chief on October 1, 1955, and retired June 1, 1958. During his career, he commanded Staten Island, the Bronx and Manhattan, and while assistant chief, was named the first head of the bureau of personnel and administration—uniformed force.

William A. Mangold, Jr.

William A. Mangold, Jr., chief of the Dumont, N. J., Fire Prevention Bureau, and a former fire chief, died on May 17 in Firehouse 1. He was a brother of the present fire chief, Earl Mangold. □□

From one chief to another . . .

"The Cornelius HIGH PRESSURE AIR COMPRESSOR IS PROVING ITS VALUE TO US MORE DAY-BY-DAY"

— Chief W. L. Hydaker, Lima, Ohio

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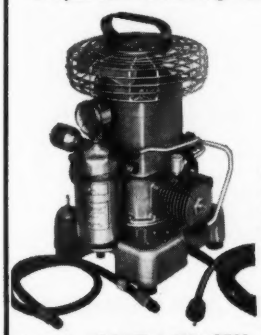

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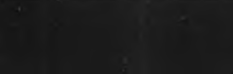

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PROMOTIONAL EXAMINATIONS

Continued from page 550

skill as an executive and a leader must increase geometrically.

To attempt to measure or judge this increasing capacity as an officer advances in grade and responsibility is not an easy task, but this is exactly what the promotional examinations are attempting to do. The multiple-choice nontechnical questions are the means employed by the examiners to judge this capacity. The effort being made on promotion examinations is worthwhile and should result in an increasingly better selection of more capable leaders in the fire service.

As for the second, the answer is that no set of rules and regulations, no matter how complete, can cover all the subjects involved; even the attempt to do so involves an almost impossible task. The important point to be considered is whether the rules and regulations should cover these subjects if such were possible. The answer is most emphatically, No! Leadership under such a system would become impossible and the officer would be stripped of all the personal contributions that he as an individual can make to his job and to his department. It is this personal, intimate and daily association of the officer and his men, guided by intelligent rules and regulations, that makes teamwork possible and assures a high degree of morale for all concerned.

What to do about it

Since there is every indication that more and more of these mutiple-choice questions will appear on all future promotion examinations, the problem is what can the man who aspires to higher grades in the fire service do about it? Instead of resisting the trend or griping about it, the intelligent man shoud take the proper steps immediately to prepare himself more adequately to answer these questions. When 20 per cent of any test consists of questions which cannot be answered by reference to rules and regulations, and this 20 per cent may make the difference between passing and failure, the intelligent course of action is to seek the education and training that will overcome that gap, whether the department sponsors such training or not. This is not an easy task, for it is very doubtful that the average candidate can prepare himself adequately without professional or technical guidance.

In many cities, such as New York, the department has such a training course in progress. Unfortunately, this

is not true throughout the country, if the author can accept as reliable the numerous letters received from fire officers requesting more concrete information on books, courses or any other published materials on these subjects. In New York City, the Fire College Library has proved to be a tremendous asset in furnishing promotion candidates with pertinent literature. This means that the man who desires to do well on promotion examinations must go more and more into subject areas beyond the rules and regulations.

The book expert

During World War II, it was my privilege to serve as an assistant to a man who, in my opinion, was one of the finest officers and leaders in the service. The only officers who disliked him were the men that he liked to call "book experts." A "book expert," by his definition, was an officer who explained all his actions by constant referral to the rules and regulations. This kind of officer, he felt, implied by such constant referral that the responsibility for his actions rested in the regulations exclusively and not in his own individual judgment. It was this attitude that annoyed him. Apparently he realized and respected the importance of regulations as he constantly asked his subordinates would they recommend or take the same action if the regulation did not exist.

One day I asked him if he was "against" the regulations. His answer was swift and to the point. "Of course, I'm not against regulations. Good regulations are absolutely necessary for order and efficiency," he said, "but regulations can be wrong, can become outdated, can fail to meet changing conditions. An officer must be more than a book expert," he continued, "and his ability to make correct decisions, particularly where the book is silent, is just as important as his knowledge of what other thinking officers have put into print. A good officer is a book expert," he concluded, "but that's not enough; his real leadership must also be tested by his personal contributions to the job, his initiative and his judgment."

It seems to me that the multiple-choice nontechnical questions are attempting to get at this kind of ability. The fact that too many officers do not do too well on this phase of the examination does not mean that these questions should be eliminated. However, it may well be one indication of the need for a broader and more executive type of training for higher grade officers in the fire service throughout the country. □□

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AIRPORT FIRE PROTECTION

Continued from page 556

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8 to 4 Tour

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1 sergeant—crew chief
1 sergeant—rescue
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1 man—police emergency desk
2 electricians—auxiliary fire fighting
2 operations—escort for fire, police and ambulances

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Unit No. 2

FFCD Truck Driver	*Nurse Truck Driver*
Turret	(Aux.) assist hook-up
2 Rescue	
3 Hand lines	

4 to 12 Tour

1 sergeant—crew chief
1 sergeant—rescue
13 men—fire fighting
1 man—emergency police desk

Continued on page 583

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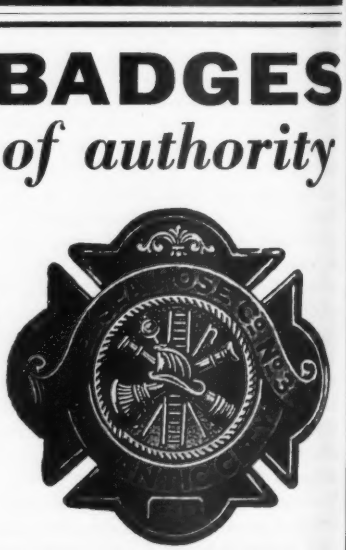

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Coming Events

July 27-29—**Wisconsin Paid Firemen's Association.** Annual meeting, Superior, Wis. Secretary, Bob Madden, 1240 Wolff Street, Racine.

Aug. 6-8—**Ohio Fire Chiefs Association.** Annual meeting, Columbus, Ohio. For information, contact Chief Walter G. Strickfaden, Host Chief, Columbus Fire Department.

Aug. 13-15—**International Rescue and First Aid Association.** Annual meeting, Minneapolis, Minn. For information, write Max L. Spray, Executive Director, 101 North Alfred Street, Alexandria, Va.

Aug. 17-20 — **Canadian Association of Fire Chiefs.** Annual meeting, Windsor, Ont. Secretary-Treasurer, Chief Allan H. Clark, Fire Headquarters, Lakefield, Ont.

Aug. 20-22 — **Cumberland Valley Volunteer Firemen's Association.** Annual meeting and fire prevention conference, Harrisonburg, Va. Secretary, D. Stalnaker, Fire Company No. 1, 56 Newman Avenue, Harrisonburg, Va.

Aug. 23-25—**New York State Permanent Firemen's Association.** Annual convention, Fulton, N. Y. Robert E. Mills, Secretary-Treasurer, 420 Plymouth Drive, Syracuse, N. Y.

Aug. 30—**Great Lakes Division, International Association of Fire Chiefs.** Annual meeting, Pantlind Hotel, Grand Rapids, Mich. Secretary-Treasurer, Chief Willard G. Compton, 350 North Fountain Avenue, Springfield, Ohio.

Aug. 31-Sept. 3—**International Association of Fire Chiefs. Annual meeting, Grand Rapids, Mich. Secretary-Manager, B. Richter Townsend, 232 Madison Avenue, New York 16.**

Sept. 17 — **Delaware Fire Chiefs Association.** Semi-annual meeting, Christiana, Dela. Secretary, Howell H. Barnes, Smyrna, Dela.

Sept. 18-19—**Delaware Volunteer Firemen's Association.** Annual meeting, Newark, Dela. Secretary, E. Reynolds Bradley, Smyrna.

Sept. 21-23—**New Mexico State Firemen's Association.** Annual meeting, Carlsbad, N. M. For information write Chief Ira J. Stockwell, Fire Station No. 1, Carlsbad, N. M.

Sept. 22-25—**Michigan Fire Inspector's Conference.** Annual meeting, Michigan State University Kellogg Center, East Lansing, Mich. For information, write Arthur P. Patriarche, Secretary, Michigan Fire Inspector's Society, 716 Ann Street, East Lansing, Mich.

Oct. 19-22—**International Municipal Signal Association.** Annual meeting, Las Vegas, Nev. Secretary, Irvin Shulsinger, 130 West 42nd Street, New York 36, N. Y. □□

FIRE COLLEGES

Arizona State Fire School—Oct. 15-17, Phoenix, Ariz. For information, contact Battalion Chief Jake Siken, Firefighting Instruction Supervisor, Phoenix Fire Department, 49 South First Street, Phoenix.

Civil Defense Instructor Training Course for Eastern Area — July 27-31, Radiological Monitoring for Instructors; July 27-31, Principles of Organization and Staffing. All sessions will be held at the Eastern Instructor Training Center, Office of Civil Defense Mobilization, Brooklyn 35, N. Y. For information, write the Center at the above address.

Florida State Fire College—Aug. 3-7—Seminar in Arson Investigation and Detection. Sept. 7-11—Units 101, 107, 201. Sept. 14-18—Units 102, 106, 202. Sept. 21-25—Units 103.

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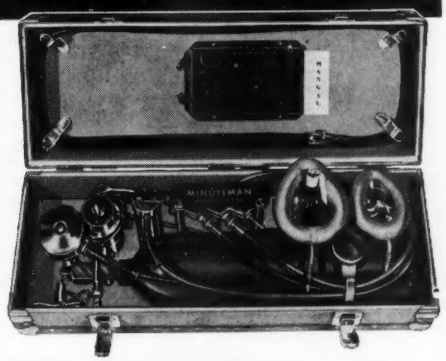

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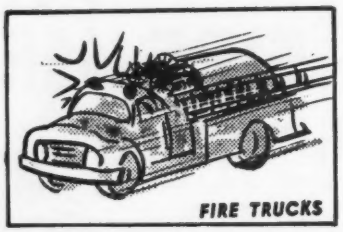

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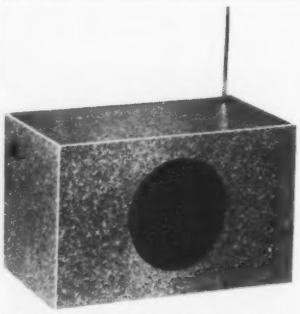

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105, 204. Sept. 28-Oct. 2—**Units** 104, **204, 208.** For information, contact W. H. Barnett, Superintendent, P. O. Box 785, Ocala, Fla.

Idaho State Fire School—Aug. 13-15, Boise, Ida. Director, Chief Leon Sodorff, Fire Headquarters, Moscow, Ida.

Indiana Fire Training Program—Sept. 9-12, **26th Annual State Fire School;** Oct. 27-29, **Fire Inspectors Course;** Dec. 1-2, **Fire Management Course.** All courses will be held at **Purdue University,** Lafayette, Ind. For information, write Professor Shelby Gallien, Director, Public Safety Institute, Purdue University.

Kansas Fire School—Oct. 19-22, University of Kansas, Lawrence. Director, Clyde A. Babb, Director, University of Kansas Extension Classes, 111 Fraser Hall, University of Kansas, Lawrence.

Maryland Fire School—Aug. 3-5, **Third Annual Aerial Ladder Short Course;** Sept. 1-4, **Twenty-Sixth Annual Short Course for Firemen.** All sessions will be held at the Fire Service Building, University of Maryland. For information, write Robert C. Byrus, Director, Fire Service Extension University of Maryland, College Park, Md.

Missouri (Central) Fire Conference—July 24-26, University of Missouri, Columbia. Director, William Bush Walden, Administrator Assistant in Charge of Firemanship Training, Room 101, Building T11, University of Missouri, Columbia.

Morris County, N. J., Fire School—Aug. 4, Fairchild Fire Co., Morris Township; Sept. 1, Par-Troy Hills District #6 Headquarters. For information, write Robert H. Wright, Publicity Chairman, Long Hill Lane, Chatham.

New Hampshire Fire Training School—Sept. 19-20, Meadowood, N. H. Further details will be available from Leo N. Sasseville, Central Station, Laconia Fire Department.

Ohio State Arson School—Sept. 14-18, New College of Law Building, Ohio State University. For information contact Wayne C. Jenkins, Chief of Fire Prevention, State Fire Marshal's Office, Wyandotte Building, Columbus, Ohio.

Ohio State Fire School—Sept. 14-18, Ohio State University, Columbus. For information contact Wayne C. Jenkins, Chief of Fire Prevention, State Fire Marshal's Office, Wyandotte Bldg., Columbus, Ohio.

Ontario Fire College—Aug. 10-28, **Administration Course for Senior Fire Officers;** Aug. 31-Sept. 4, **Basic Fire Inspection Practices Course;** Sept. 14-18, **Fire Department Instructors' Course, Part 1.** All the above courses are to be held at the Ontario Fire College at Gravenhurst. Sept. 14-18, **Thunder Bay Regional Fire School,** Fort William, Ont. Sept. 21-25, **Simcoe District Fire School;** Oct. 5-9, **Muskoka District Fire School;** Oct. 19-23, **Mutual Aid Forum.** The events listed above are to be held at the Ontario Fire College at Gravenhurst.

Pennsylvania Fire School—Aug. 24-28, Nov. 30-Dec. 4, **Fire Department Officership Course;** August 17-21, Oct. 5-9, **Basic Fire Fighting Course;** June 22-26, Aug. 31-Sept. 4, Oct. 19-23, **Fire Department Pump School;** July 6-10, Sept. 14-18, Oct. 26-30, **Advanced Fire Fighting Course;** July 20-24, Aug. 24-28, Sept. 28-Oct. 2, Nov. 16-20, **Ladder Rescue and Salvage Course;** Aug. 3-7, **21st Annual Pennsylvania State Fire School.** All sessions to be held at the Pennsylvania State Firemen's Training School. For information write Art Espey, Director, Box 631, Lewistown, Pa.

Southern Wisconsin and Northern Illinois Fire School—Sept. 13, Truax Field Air Force Base, Madison, Wis. Secretary, Herman Pfund, New Glarus, Wis.

Tennessee State Fire School—Aug. 17-21, Murfreesboro. Director, H. S. Elkins, State Fire Service Instructor, 215 Chestnut Street, Chattanooga.

Tri-State Fire School—Sept. 14-18, Huntington, W. Va. For information write Captain R. M.

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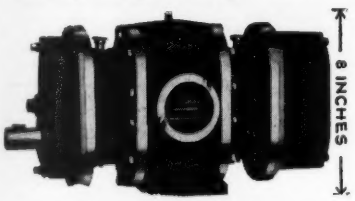

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ASK the Chief who uses one

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Myers, Secretary Planning Committee, c/o Fire Chief's Office, 816—9th Street, Huntington, W. Va.

Virginia State Fire School—Aug. 24-28, South Boston, Va. For information write R. Lawrence Oliver, State Board of Education, P. O. Box 654, Harrisonburg, Va.

Western Pennsylvania Firemen's Training Institute—Aug. 24-28. Annual Fire School, State Teachers College, California, Pa. For further information contact James Silbaugh, Secretary, Fire School Committee, Uniontown, Pa.

Wisconsin Regional Advanced Fire Protection Schools—Aug. 13-15, Black River Falls; Aug. 28-29, Beaver Dam; Sept. 8-9, Ashland; Sept. 10-11, Rhinelander; Sept. 24-25, Sheboygan; Oct. 1-3, Waupaca. For information write William E. Clark, Supervisor of Fire Service Training, Wisconsin State Board of Vocational and Adult Education, 14 North Carroll St., Madison 3, Wis. □□

Questions and Answers

Extinguisher Hazard

To the Editor:

What are the hazards of chlorobromomethane as used in fire extinguishers?

D. S.

Answer: According to the Underwriters' Laboratories, when this agent is applied to fire, the chief gaseous decomposition products include hydrochloric and hydrobromic acids, carbonyl halides including phosgene and bromophosgene, and in some cases free chlorine and bromine. The concentrations of these products depend upon the quantity of chlorobromomethane applied, the fire conditions and the degree of confinement of the fumes.

The decomposition products are very irritating and give warning of their presence in very small concentrations. Under fire conditions in well-ventilated places they may not endanger life on temporary exposure. In enclosed places such as vaults or small basement rooms where prompt exit may be difficult, there is danger.

Fire Causes

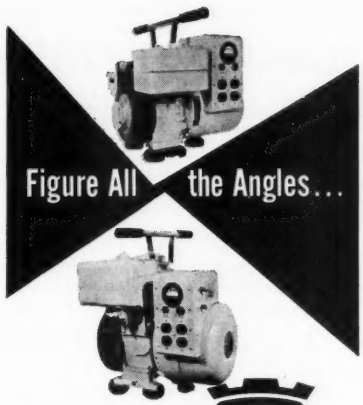
To the Editor:

What are the leading causes of fires in the United States?

H. F.

Answer: According to statistics of the National Board of Fire Underwriters, 25.2 per cent of 1,140,000 fires reported during the period 1953-1957 were caused by matches and smoking. These same fires accounted for 15.4 per cent of property losses. Electricity and electrical equipment caused 20.7 per cent and were responsible for 33.6 per cent of the property damage. Lightning caused 12.8 per cent of the fires, and heat, flames or sparks from sources other than defective heating units or welding torches were responsible for 11.6 per cent. The latter causes resulted in less than 7 per cent of the property losses respectively.

While these figures do not represent the total fires or losses for the period reported, they are indicative of the leading causes. □□



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Standard features include:

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- 4 to 6 receptacles of all types
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ONE YEAR WARRANTY ON ALL PM PRODUCTS

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FIRE DEPARTMENT
DIAMOND T RESCUE TRUCK
FOR SALE

Sealed offers to purchase will be received by the Village of Hempstead until 8 P.M. on September 1, 1959 for:

One 1942 Diamond T Rescue Truck Model 406, Serial No. 4063351, Motor No. 42227.

Special 6 Cylinder engine for fire truck—110 H.P. Weight loaded 10,850 lbs.; unloaded 8,600 lbs. Length 23 ft. 4 in. Width 7 ft. Height 9 ft. 5 in. 163¾ in. wheel base. Four wheel hydraulic booster brakes.

This truck is offered "as is—where is" and may be inspected by appointment with Fire Chief Eugene W. Pettit, 318 Fulton Avenue, Hempstead, N. Y.

Sealed offers to purchase must be marked "Offer for Rescue Truck" and be addressed to Lael Von Elm, Village Clerk, 99 Nichols Court, Hempstead, N. Y.

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1949 American LaFrance, 750 GPM Pumper, Invader Model, V-12 Engine, excellent condition, low mileage, 150 gal. booster tank, Hose Bed will hold 1500 ft. of 2½" hose. $7,500.00. Contact Chief H. J. Leary, McKinley Fire Co. #1, McKinley, Phila. 17, Pa.

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1954 Cadillac Ambulance
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We operate two ambulances on periodic replacement schedule—make offer by writing

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PROPOSAL

Sealed bids will be received by Borough Council of the Borough of Glenolden, Delaware County, Pennsylvania until 8 P.M., D.S.T., Thursday, July 30th, 1959, at a special meeting of Council to be held in the Council Chamber of the Glenolden Library Building, Glenolden, Pennsylvania at which time and place all bids will be publicly opened and read aloud for the sale of one (1) 1941 Seagrave Pumper, semi-cab, 500 G.P.M. with bronze pump equipped with 150 gal. booster tank, one (1) 28 ft. extension ladder and one (1) 14 ft. roof ladder.

This pumper may be inspected at any time in the Fire House of the Glenolden Fire Company #1, Glenolden, Pennsylvania at which time a list of equipment supplied with the truck will be furnished to prospective bidders.

A Certified Check or Bid Bond in the amount of $100. payable to the order of the Borough of Glenolden must accompany each proposal.

Borough Council reserves the right to reject any or all bids. Address all bids to the undersigned.

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Secretary of Council
Glenolden, Pennsylvania

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2 EMERSON DUAL RESUSCITATORS

Complete; like new; full guarantee. Reason for selling: need smaller units in our work. Price: $350.00 each. FOB. Contact Sloper-Willen Ambulance Service, Wappingers Falls, N. Y., AXminster 7-3778.

1940 — CITY SERVICE LADDER TRUCK FOR SALE

1940 Mack City Service Truck complete with ladders to be sold on "as is" basis. Sealed bids will be received until 8:00 P.M. August 24, 1959, at Town Manager's Office, 36 Trinity St., Newton, N. J. Town reserves the right to reject any and all bids. Truck may be seen, by appointment, by calling Newton 560 or 196.

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Mark their homes with F D RESCUE MARKERS . . . approved and used by FIRE DEPTS. throughout U. S. and Canada.
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ABSOLUTELY FREE

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ADVERTISING
on this page
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Write for New free catalog of other SPARKY gifts and fire safety prizes.

Continued from page 578

2 electricians—auxiliary fire fighting
2 operations—escort for fire, police and ambulances

Unit No. 1

FFCD Truck Driver	*Nurse Truck Driver*
Turret	(Aux.) assist hand lines
Rescue	
3 Hand lines	

Unit No. 2

FFCD Truck Driver	*Nurse Truck Driver*
Turret	(Aux.) assist hand lines
Rescue	
2 Hand lines	

The variance of men available for fire fighting on each tour is due to the special requirements of the 8 to 4 and 4 to 12 tour as compared to the 12 to 8 tour.

The extensive fueling operations conducted at major airports is one of the emergency operations requiring speedy action. For example, during 1958 at International Airport, over 200,000,000 gallons of fuel were dispensed from tank trucks to aircraft. The daily average was 947,000 gallons. Due to increased jet operation, this average will probably exceed 1,000,000 gallons shortly. At La-Guardia, the daily average is 175,000 gallons, with an annual rate of approximately 63,000,000 gallons. At Newark the 1958 daily average totaled 108,000 gallons, with the annual rate close to 40,000,000 gallons.

Emergency crews must be trained to handle other special aircraft emergencies which include fires involving the release of oxygen, alcohol in deicing fluids or special types of fluids injected into aircraft engines to increase power. The hydraulic fluids generally encountered for brakes, aircraft landing gear operation and aircraft navigation present other types of fire control problems. Magnesium, special signal flares, tire fires, brake fires, engine exhaust stack fires as well as jet exhaust and jet engine operation during fire fighting point up some of the problems requiring special instruction and training. In an emergency should military aircraft seek refuge at a commercial airport, the crash crew men must be alert to the hazards, including arms, ammunition, bombs, rockets, seat ejector mechanisms, canopy releases and continued jet aircraft engine operation.

Gasoline and jet fuel fires are presently the major problems. The aircraft of the future, fueled with special high-energy fuels or solid propellants will create new hazards. These will only be met by sound research, proper instruction and continued training. □□

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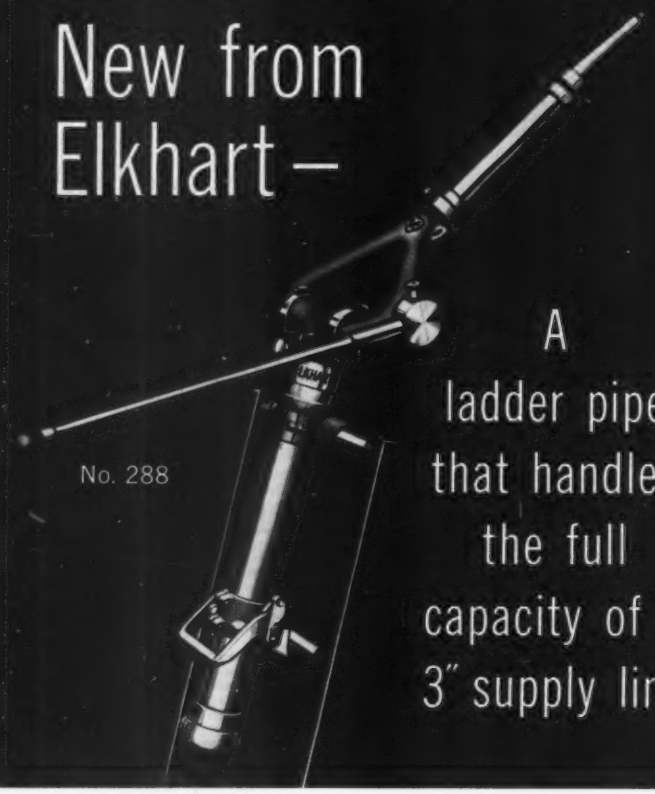

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Equipped with quick action clamping device . . . saves valuable time

- Clamping device is adjustable to every make of aerial ladder. It can be mounted on either top or bottom side of the fly or the bed ladder.
- Can also be operated from the ground by ropes.
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- Has double stream shapers and directional baffle to insure turbulent-free stream.
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- Controlling handle adjustable 360°. Furnished in all brass or brass with aluminum body.

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ELKHART, INDIANA
More than half a century of fire fighting progress

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The Cleveland Fire Department—**with 38 Hose Dryers* and a growing number of Roto-Jet Washers**—currently tops the list of municipal Circul-Air users. Chief Elmer Cain says:

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Chief Elmer Cain
Cleveland Fire Dept.

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- lifting piled debris?
- opening car doors?
- bracing tunnel walls?
- releasing elevator victims?
- freeing trapped workmen?

there are a thousand and one more uses!

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